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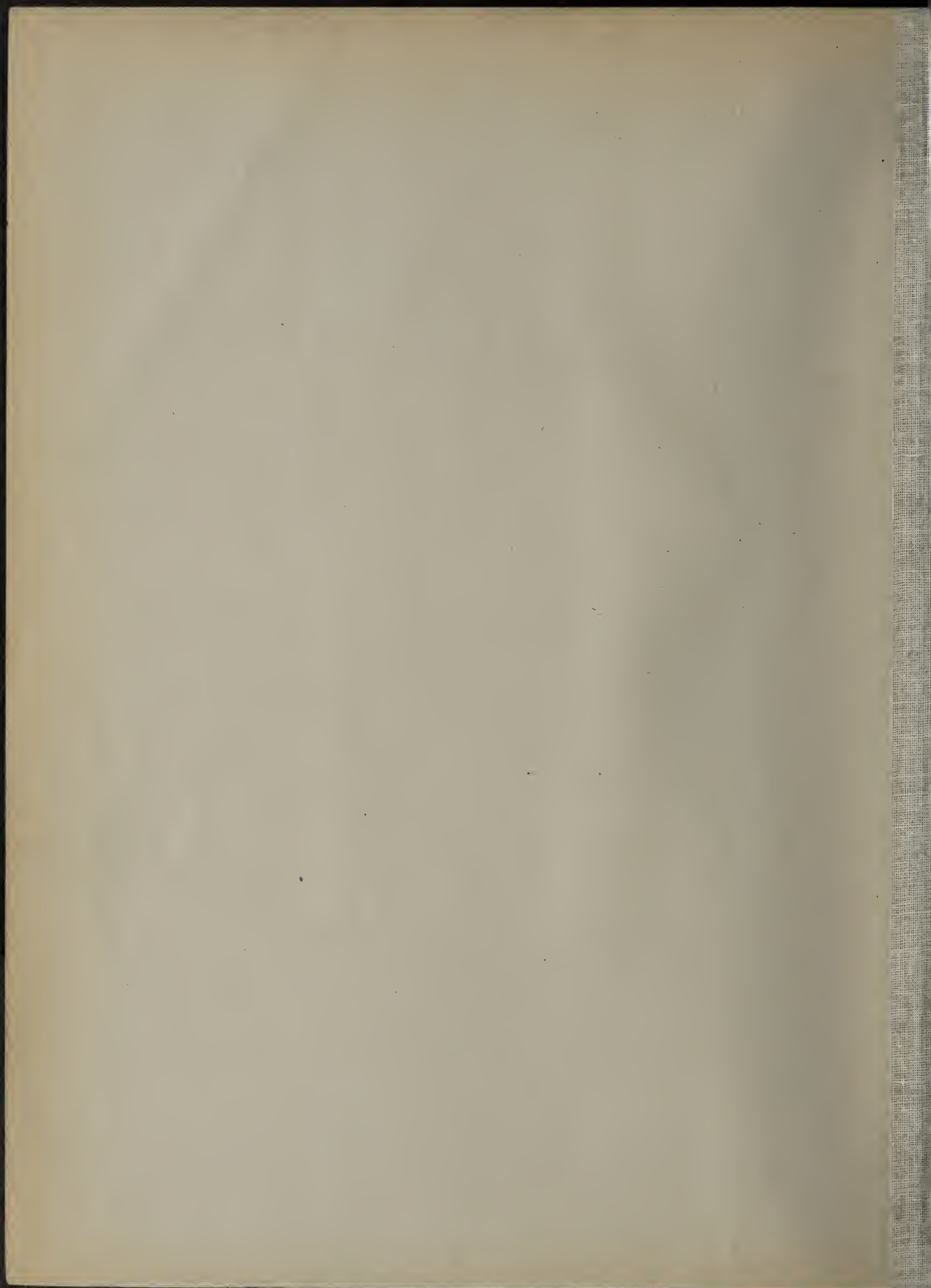
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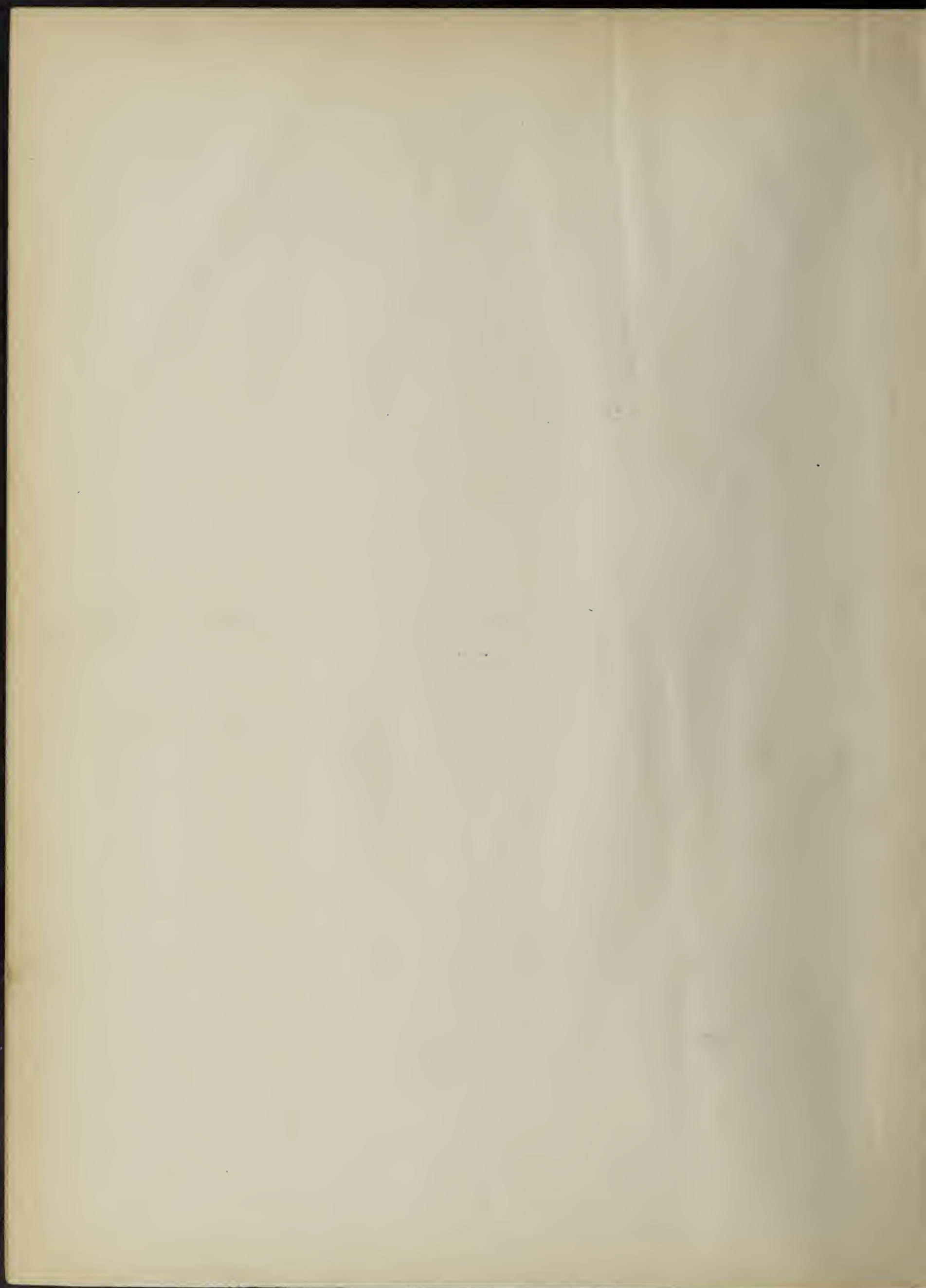
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Vol. 62

Brick and Clay Record

January-June 1923

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BRICK AND CLAY RECORD

(The Slogan Selected Will Appear Here)

(The opinion of our readers, expressing the purpose and spirit of this publication)

Head Off the Effects of a Labor Shortage

THE NUMBER OF BRICK made per man per day on a clay plant seems to be a thought that is foremost in the minds of the men of the clay industry according to indications that mail recently received by Brick and Clay Record has given. This can mean but one thing. Manufacturers are recognizing and anticipating a labor shortage. Therefore, they are interested in increasing as much as possible the man productivity of their plants so that less men will be required to turn out a given production of ware.

Labor Shortage Imminent

Those manufacturers who have caught the spirit of increased man capacity are directing their efforts in the proper channel. A labor shortage—common labor more particularly than others—promises to be even more severe in 1923 than at any time in 1922.

Two forces in particular are acting to bring about an acute labor situation. First, 1923 is undoubtedly going to be a year which will surpass 1922 in general business activities. When business is good it means that all lines are employing more men and the ranks of labor are drawn from heavily. Also, when the supply is reduced to a minimum competition between employers tends to raise the wage rates and to cause labor to be more independent and less efficient.

A Loss in Common Labor

The second factor is more potent than the other. The immigration problem is becoming a greater one day by day. In the years, 1910 to 1914, the average labor gains from immigration was 505,046 per year. In 1922, this number was reduced to the paltry sum of 21,131. The situation is even worse when we consider the supply of common labor. For the 12 months ending June, 1922, there was an exodus of common labor over and above those immigrants who have come in of 67,332.

While it may be true that in prewar years the immigration was too great and that the figure of 500,000 annual immigration is more than this country

can safely take care of without a severe shock to the economic conditions of the industry, on the other hand, the small sum of 21,131 immigration in 1922 is far below requirements and is even more serious than a great surplus. Somewhere between these figures there is a proper mean which if it were in force would permit just sufficient immigration that would not create a great surplus such as would cause too great competition between labor for jobs and cause great unemployment, or on the other hand, would permit a figure too small that would cause great competition for labor and thereby increase production costs, which in turn would raise prices of commodities beyond reason.

Laws Will Not Be Changed Soon

It is true that considerations are now being made for some change in our immigration laws. But while we are waiting for an expression to be formulated by the nation as to the proper number of immigrants to be permitted to enter this country and before Congress will enact such legislation, we are going to experience a very severe situation that will hit those industries employing common labor harder than others.

Two years ago when the country experienced a business depression and an unemployment problem, it was found that reduction in labor wages was not as great as had been anticipated nor was it commensurate with the reduction of wholesale prices of commodities.

Wage Reduction Not Likely

It seems that history is going to repeat itself. After the Civil War labor wages never did go down in proportion to the prices of clothing, food stuffs, building materials, and so forth. The equilibrium between wages and prices of commodities was maintained thru the introduction of labor saving machinery and better methods of plant operation. In other words, the man capacity was increased, which resulted in lower production costs.

The labor shortage such as is in

prospect would mean more than simply reduced plant capacity and increased production cost to the producer. It would mean that if the manufacturer desired to purchase equipment from his supply house he would find it difficult to secure it because of the labor shortage that exists in that business and also there is the possibility of higher costs.

Distribution Difficulties Increase

Moreover, distribution of clay products will be more difficult because of shortages of railroad labor and in securing men to unload cars, and so forth. This situation incidentally would warrant the stocking up of clay products by building supply dealers everywhere. Alert clay products manufacturers will use this thought in urging the building material merchants to stock up heavily before spring. The dealer would be insured against inability to deliver goods and against price increases, and the manufacturer would be assured of greater distribution.

Machine Substitutes Needed

We have gotten away from our original theme but the subject of labor shortage involves so many problems that we could not pass up the opportunity of mentioning the above thought. It should be apparent to the clay products manufacturer that he should give the labor supply matter serious and intensive thought. He must do everything that he can to secure the highest grade of men and endeavor to keep them. In endeavoring to keep his men he will have to consider the advisability of furnishing company houses, bonus systems for attendance, and other methods designed to keep labor on the plant and on the job.

Secondly, the producer will have to consider the installation of machinery and equipment that will reduce as much as possible the number of men required and that will relieve those men that are essential of as much difficulty and hard work as possible. Jobs are going to be plentiful for every man, and it is only natural that he will choose such occupations as will require the least amount of manual and mental effort and the highest pay.

The "Last Call"

You have only a few days left before the slogan contest which Brick and Clay Record is conducting closes.

For the best slogan a prize of \$100 is offered; for the second, \$50; for the third, \$25; and five additional prizes of \$5 each.

The object of the contest is to celebrate the 30 years of Brick and Clay Record's service in the clay products industry.

During this time Brick and Clay Record has climbed to high esteem in the industry because it has championed the best causes of the manufacturers, such as discouragement of price-cutting and profiteering; advocacy of wide publicity for products; admonishment of need for cost reduction; urging and presentation of good cost systems; promotion of scientific efficiency; publication of books on better manufacturing methods; supported trade association work; giving latest news of any plant or machinery development, and so forth.

The slogan should express in a short statement the effect, consideration or position Brick and Clay Record has in the hearts of its readers.

All readers of the publication should be considered, that is, manufacturers of paving, fire, face and common brick, hollow and drain tile, sewer pipe, and so forth.

There is no desire to obtain mere puffs or flattery, but only a bona fide expression of direct observation on the part of the reader entering a slogan is wanted.

You can send in as many slogans as you desire.

Each slogan should be accompanied by a short paragraph explaining why it was chosen.

The judges of the contest are secretaries of the Refractories Manufacturers, National Paving Brick Manufacturers, American Face Brick, Clay Products, Hollow Building Tile, and Common Brick Manufacturers' Associations; Messrs. F. W. Donahoe, E. E. Duff, R. D. T. Hollowell, George C. D. Lenth, J. S. Sleeper, and Ralph P. Stoddard, respectively, and Brick and Clay Record.

All slogans must be in by noon, January 20. There are only a few days left—it is a novel matter—why not send your slogan in now? Address the slogan editor.

*January 20 Is
Last Date*

*You're Missing
Something
If You're "Not In"*

Brick and Clay Record

407 South Dearborn Street

Chicago, Ill.

Tile Meeting to Be Discussion Forum

**Delegates to Hollow Building Tile Association
Convention to Get Opportunity to Talk About
Business Problems—Big Attendance Assured**

THE SECRETARY'S REPORT at this year's convention of the Hollow Building Tile Association, to be held January 25 and 26, will be a story of the most amazing progress and development in the annals of the hollow tile industry. Since September the association has made vigorous efforts to increase its membership and to get sufficient tonnage represented in the organization to be really representative of the hollow tile industry of the country. Results achieved in this campaign have been little short of astounding. Some 42 new members have been added to the association's roster, and as a result, there is represented within it now almost three times the tonnage which it boasted of four months ago.

The character of the association has changed in other ways, altho its purposes and aims are still the same. The entire country has been divided into groups or sections and each division has its own representative who looks after the interests of the manufacturers within his particular territory. The men secured for this work are of high calibre and have added considerable strength to the organization and greatly increased its value to the membership.

Scope of Work Greatly Increased

The Hollow Building Tile Association now bears all the earmarks of a progressive and modern organization equipped to give its members valuable service and to take care of their interests in a most capable manner. The activity of the group representatives is supplementary to the work of the main office which will continue as before.

In view of the above-mentioned fact plans are being made to accommodate the largest gathering of hollow tile manufacturers which has ever attended an annual meeting. The meetings will be held at the Drake Hotel, Chicago, and will begin at ten o'clock Thursday morning, January 25.

The convention will be somewhat different from the usual meetings of this character and will be unique in that there are no speakers scheduled at the meeting. All sessions will be taken up by discussions on problems of direct and vital interest to the manufacturers of hollow tile. The work and activities of the association during the past year will be reviewed and plans made for the 1923 program.

Association Activities

Among the activities of the association which will be explained to the delegates are the following:

Work in cooperation with the Bureau of Standards; work on simplification of varieties and sizes of tile; work on revision of building codes; research work in cooperation with three other associations in the industry; advertising; review of traffic situation; review of statistical work to be undertaken. These and many other activities will be reviewed.

Notable work has been done during the past year in investigating the fire-resisting and related properties of hollow building tile in cooperation with the U. S. Bureau of Standards. A furnace, suitable for making fire tests of small panels up to four feet square was built and tests of unprotected panels built from tile of representative elays have



At the Left Is Pictured the French Room at the Drake Hotel. In This Room the Hollow Building Tile Association Will Hold Its Meetings. The Room Is Cleared of Tables and Made Into a Meeting Hall.



The Lounge, Showing Some of the Magnificent Facilities Available for the Comfort of Guests at the Drake Hotel, Chicago.



The New and Beautiful Drake Hotel, Where the Hollow Building Tile Association Will Meet
January 25 and 26, 1923.

been made in order to establish their behavior under fire. In conjunction with these fire tests, determinations of the absorption, compressive strength, expansion, mineralogical composition, and ability to withstand freezing, are being made.

Opportunity to Discuss Problems

One entire session of the convention will be devoted to discussions of problems presented by manufacturers. This affords an opportunity for manufacturers to offer for solution problems occurring in the manufacture of their products. The value of such discussions is of course apparent and undoubtedly many things will be brought out which will be of great interest and value to those attending.

The Drake, where the meetings will be held, is one of Chicago's newest and finest hotels, and offers splendid facilities for conventions. Delegates may be assured of the finest service and best consideration by the Drake management. Reservations should be made early to assure comfortable quarters and avoid delay upon arrival.

There will be a luncheon on both days of the convention and a speaker has been secured for each. There will also be some entertainment at these luncheons which should be an attraction, as the calibre of acting secretary, J. S. Sleeper's entertainment has always met with approval.

The Hollow Building Tile Association extends a hearty invitation to all manufacturers of hollow tile to be present at its 1923 convention.

WANTED—FOR BRICK AND CLAY RECORD

In order to widen its scope and extend its service Brick and Clay Record desires to employ another Field Editor. Prefer man who is accustomed to traveling, has had long contact with industry, knows how to gather facts and put them down on paper and can handle camera. Address Editor—Brick and Clay Record, 407 So. Dearborn St., Chicago.

PRODUCTION OF BAUXITE IN 1922

The domestic production of bauxite in 1922 was at least twice as large as in 1921 and may reach a total of not less than 300,000 long tons, according to James M. Hill, of the United States Geological Survey. This quantity is about half of that normally consumed, yet the increase in output

is encouraging, for it reflects a larger demand by all the consuming industries, particularly the abrasives industry. The operations in the Arkansas and the eastern fields were larger, tho in Arkansas car shortage in the fall limited to some extent the production.

During the first six months of 1922 the imports of bauxite averaged about 1,500 long tons a month, but since June they have been more than 3,000 tons a month. The prices of domestic dried bauxite ranged from \$6 to \$10 a ton, but were lower in the last half of the year. The prices of pulverized and dried bauxite have ranged from \$12 to \$15 a ton, and of calcined from \$20 to \$25 a ton. The effect of a shortage of coal is reflected in an increase in the price of calcined bauxite during the latter part of 1922. Under the new tariff the duty on bauxite is \$1 a ton, whereas under the old tariff it was on the free list.

✻ ✻ ✻

ROADS BUILT WITH FEDERAL AID YEAR ENDING JUNE 30, 1922

STATE	BRICK		TOTALS, ALL TYPES		
	Total Cost	Miles	Total Cost	Federal Aid	Miles
Alabama.....			\$ 3,117,022.41	\$ 1,471,037.95	319.6
Arizona.....			3,516,668.68	1,733,789.06	175.5
Arkansas.....			5,137,991.87	1,714,903.00	499.1
California.....			3,097,188.77	1,423,937.46	160.9
Colorado.....			3,469,704.74	1,631,345.69	220.8
Connecticut.....			347,482.35	163,910.78	13.1
Delaware.....	\$ 671,467.39	6.2	1,615,761.46	393,654.83	28.1
Florida.....			69,466.31	29,700.63	15.6
Georgia.....	13,585.01	.4	12,463,462.73	5,636,278.70	730.8
Idaho.....			6,398,969.93	3,028,399.88	404.9
Illinois.....	453,350.53	13.5	23,424,609.01	10,668,902.80	702.9
Indiana.....			3,489,835.38	1,676,894.90	91.7
Iowa.....	1,337,973.60	21.2	9,199,214.57	3,511,878.62	488.9
Kansas.....	2,279,113.95	46.4	5,766,072.36	1,892,280.87	140.2
Kentucky.....	223,102.34	3.9	2,857,106.88	1,224,965.71	130.3
Louisiana.....			3,177,925.69	1,386,187.59	283.2
Maine.....			1,819,125.27	857,280.65	65.3
Maryland.....			4,804,945.57	2,272,317.90	166.9
Massachusetts.....			4,360,494.02	1,759,714.95	113.4
Michigan.....			3,528,217.33	1,680,192.96	162.0
Minnesota.....			10,481,855.06	4,061,832.60	1,144.6
Mississippi.....	257,046.93	6.4	3,076,712.82	1,453,631.39	300.5
Missouri.....	152,491.97	3.5	3,056,395.55	1,370,645.18	190.0
Montana.....			5,298,389.77	2,591,706.30	464.4
Nebraska.....	308,343.72	7.5	1,192,299.15	499,522.90	168.1
Nevada.....			1,943,657.72	877,660.30	115.6
New Hampshire.....			1,882,698.41	906,518.19	118.2
New Jersey.....			3,073,022.31	1,161,457.31	70.7
New Mexico.....			1,784,607.16	890,449.48	184.7
New York.....			3,724,029.26	1,686,215.91	110.8
North Carolina.....			5,731,873.82	2,605,098.76	402.7
North Dakota.....			1,363,637.95	639,879.22	311.7
Ohio.....	5,494,319.74	128.8	16,845,532.51	5,653,904.56	481.1
Oklahoma.....	8,832.00	.4	2,398,173.00	1,117,967.15	86.2
Oregon.....			9,036,285.21	4,032,957.06	449.7
Pennsylvania.....	1,001,904.89	22.7	21,382,726.14	8,372,167.23	440.1
Rhode Island.....			1,284,454.89	550,080.40	32.0
South Carolina.....	490.00	.2	3,957,404.32	1,853,012.58	393.6
South Dakota.....			1,422,406.84	699,618.84	154.8
Tennessee.....			1,241,632.29	586,897.44	41.1
Texas.....	134,869.62	1.6	11,584,549.85	4,727,939.21	1,130.6
Utah.....			548,904.15	266,499.90	21.4
Vermont.....			540,503.30	263,963.82	21.9
Virginia.....			2,693,380.19	1,303,618.26	174.4
Washington.....			8,025,743.67	3,783,259.11	353.8
West Virginia.....	405,819.10	10.3	2,687,374.55	1,192,163.78	134.5
Wisconsin.....			10,522,740.00	3,868,465.20	677.8
Wyoming.....			2,460,177.95	1,144,090.76	316.5
Total.....	\$ 12,742,710.79	273.0	\$240,902,433.17	\$102,318,797.77	13,354.7

✻ ✻ ✻

This issue of "Brick and Clay Record" contains a complete cost accounting system. Turn to page 30.

Business Briefs and Trend

1922 BUSINESS REVIEW

Production of manufactured commodities in 1922 was about 50 per cent. greater than in 1921, according to figures compiled by the Department of Commerce from latest reports to the Bureau of the Census made in connection with the "Survey of Current Business." Textile mills were about 20 per cent. more active than in 1921, the iron and steel industry increased its output from 60 to 70 per cent. over 1921, non-ferrous metals from 50 to 95 per cent., petroleum 15 per cent., coke 40 per cent., paper 20 to 30 per cent., rubber 40 per cent., automobiles 50 per cent., building construction 50 per cent., lumber 35 per cent., brick 50 per cent., cement 15 per cent., leather 20 per cent., sugar 45 per cent., and meats about 5 per cent. Agricultural receipts were in general higher than in 1921. The only declines of outstanding importance were 7 per cent. in bituminous coal and 47 per cent. in anthracite.

The increase in production and the reduction in immigration improved the labor situation from a large surplus of labor at the end of 1921 to a point where shortages occur, while unemployment has almost been eliminated.

Transportation conditions changed from a huge surplus of idle freight cars to a considerable shortage, while car loadings were 11 per cent. greater than in 1921.

Prices to the farmer increased about 17 per cent. during the year, wholesale prices advanced ten per cent., and retail food prices declined five per cent. This condition gives the farmer a greater purchasing power and narrows the margin between wholesaler and retailer.

The volume of trade was considerably heavier than in 1921. Sales of mail order houses increased 6 per cent. and chain stores show a gain of 13 per cent. Debits and bank clearings also show about this same relation.

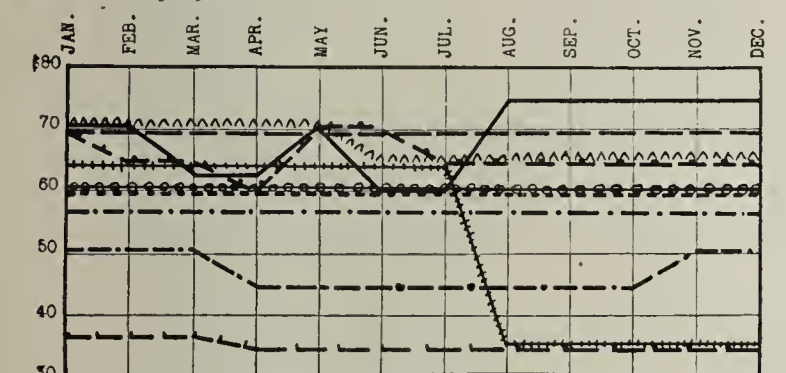
1,250,000,000 FACE BRICK PRODUCED

Figures will show that the 1922 demand for face brick was the heaviest in the history of the industry, according to R. D. T. Hollowell, secretary-treasurer of the American Face Brick Association, in the Chicago Journal of Commerce. A rough estimate places the year's production at 1,250,000,000. The largest preceding annual production was in 1916 when the government recorded 1,002,000,000. The year closed with stocks in most plants depleted. The supply having moved into regular channels to meet the unusual demand for the building interests.

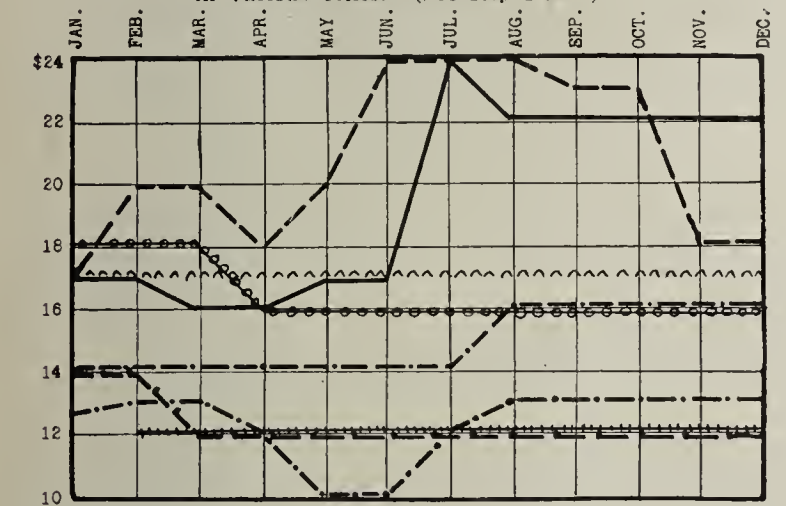
All manufacturers and dealers are optimistic as to the immediate future. Most of them see an enormous building program just ahead, and the most of them predict a demand for face brick during 1923 far greater than during the record-breaking year just closed.

COMMON BRICK STOCKS LOWER THAN USUAL

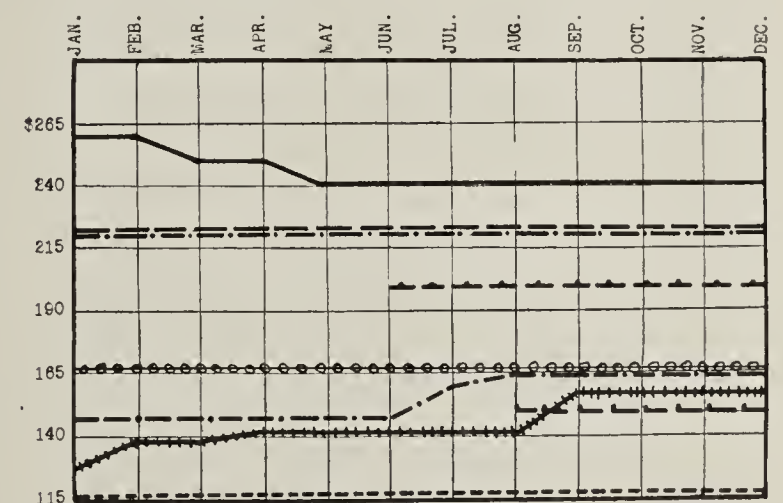
The brick industry is entering the winter with a smaller stock of brick than usual because of the coal and rail dis-



Price per Thousand of Standard Nine-Inch Fire Brick, No. 1 Standard, in Various Cities. (See Key Below)



Price per Thousand of Common Brick in Various Cities of the Country. The Price in the Three Charts Presented on This Page are Taken from Building Supply News and Are Delivered on the Job. (See Key Below)



Price per Thousand Pieces of 8x12x12 Inch Hollow Tile in Various Cities. (See Key Below)

Key to cities represented by curves: — Boston, Mass; ---- New York City; Atlanta, Ga; ----- Cleveland, Ohio; ----- New Orleans, La; — Denver, Colo; + + + + Chicago, Ill; o o o o Minneapolis, Minn; ^ ^ ^ ^ San Francisco, Calif; — — — Seattle, Wash.

turbances a few months back, says the current monthly digest of the Common Brick Manufacturers' Association. Demand has been so great that a majority of the brick plants of the country have been unable to supply enough material for the trade and stock both.

On account of winter weather fully 25 per cent. of the plants of the country have already shut down. When the weather becomes mild again and building is resumed it is not unlikely that there will be a shortage of brick.

Prices will in all probability remain approximately as they are since there is not likely to be any considerable drop in the cost of the two main items entering into the cost of manufacturing brick, fuel and labor. In general a good year is expected in 1923.

* * *

1922 YEAR OF GREATEST BUILDING

Building costs increased about 20 per cent. during 1922, as shown by the index numbers for building materials prepared by the Department of Commerce, as well as by the building and factory construction cost indices.

Total volume of building contracts let in eleven months of 1922 was 52 per cent. greater than in the corresponding period of 1921, and for the full year will undoubtedly exceed the 1919 building record. In value the 1922 contracts already exceed the total contracted for in any previous year, and the average number of projects greatly exceed previous years. Over half of the building volume increase over 1921 was due to the increase of over 100,000,000 square feet in residential buildings, or 56 per cent. over 1921. The greatest relative increase, however, occurred in industrial buildings, with a gain of 86 per cent, while business buildings gained 48 per cent.

* * *

HOW WAGES HAVE RISEN

A nationwide survey of wage changes, covering 400,000 wage earners in 23 industries, just completed by the National Industrial Conference Board, shows that the average hourly earnings of all wage earners were \$.238 in July, 1914. In July, 1922, they had risen to \$.484, in August to \$.486, in September to \$.495.

The average weekly earnings of all wage earners, which were \$12.27 in July, 1914, had risen to \$23.09 in July, 1922, to \$23.31 in August and to \$23.88 in September. The average weekly earnings of unskilled labor in July, 1922, were 87 per cent. above 1914 and in September, 1922, 95 per cent. above prewar levels, while those of skilled labor in July, 1922, were 86 per cent. above 1914, and in September, 1922, had risen to 92 per cent. above the July, 1914, level.

Taking into account the changes in the cost of living since 1914 and during July, August and September, 1922, this investigation shows that the "real" hourly earnings of all wage earners were 30 per cent. higher in July, 1922, than in July, 1914; 33 per cent. higher in August, 1922, and 34 per cent. higher in September, 1922. "Real" weekly earnings were 21 per cent. higher in July, 1922; 23 per cent. higher in August, 1922, and 25 per cent. higher in September, 1922, than in July, 1914.

* * *

PRICE INDEX NUMBERS ARE HIGHER

The average price paid to farmers for crops on November 15 was 20 per cent. higher than a year ago, and the livestock price index was about 14 per cent. higher.

The wholesale prices index number of the Department of Labor is over 10 per cent. greater than a year ago. Farm products and metals had the greatest relative gains. The index numbers of Dun's and Bradstreets showed larger increases during the year, the former rising 13 per cent. and the latter 21 per cent.

The retail food price index declined five per cent. during the year and showed about the same relative increase over 1913 as the wholesale food index. The cost of living on December 1 as compiled by the National Industrial Conference Board was still three per cent lower than at the end of 1921.

* * *

1922 PRODUCTION OF VARIOUS BUILDING COMMODITIES

Commodity	Production for 11 Months of Year		Per Cent. Increase in 1922 over 1921
	1921	1922	
Building contracts, thous. sq. ft.	351,931	534,341	+ 51.8
Cement, thousand bbls.....	91,734	105,199	+ 14.7
Fabricated steel (sales), long tons.....	686,763	1,287,401	+ 87.5
Brick:			
Face brick, thousands.....	389,730	502,383	+ 28.9
Silica, thousands.....	58,201	119,490	+105.3
Clay fire brick, thousands....	350,347	504,512	+ 44.0
Sanitary ware:			
Baths (enamel), number.....	459,299	787,529	+ 71.5
Lavatories (enamel), number..	652,857	980,381	+ 50.2
Sinks (enamel), number.....	740,063	1,021,461	+ 38.0

*As reported to Dept. of Commerce by trade associations.

* * *

LEAD AND ZINC OUTPUT LARGER IN 1922

The mine and refinery output of lead in the United States in 1922 each made a good gain, and the mine and smelter output of zinc each increased about 70 per cent., according to a statement by C. E. Siebenthal and A. Stoll, of the United States Geological Survey, Department of the Interior, compiled from reports and estimates by producers and others.

* * *

NATION IS SHORT 133,786 CARS

The average surplus of 282,926 freight cars on December 1, 1921, has almost disappeared, and in its place the average shortage has increased from almost nothing to 133,786 cars. The number of cars in bad order has been considerably reduced during the year. Total car loadings for 1922 increased about 11 per cent. over 1921, in spite of the drop in coal loadings and were almost up to the high mark of 1920.

* * *

POSTAL RECEIPTS GREATER

Magazine advertising was six per cent. greater than in 1921, while newspaper advertising, based on ten months, showed a decline of 6 per cent. Postal receipts for eleven months were nine per cent. greater than in the 1921 period, and made a new high record.

* * *

BRICKLAYERS ARE LONG LIVED

U. S. Department of Labor statistics just issued show that masons and bricklayers are among the longest lived men, being only exceeded by blacksmiths, farmers and farm laborers, says a bulletin issued by the Common Brick Manufacturers' Association. 55 years is the average span of life for a bricklayer, while the average bookkeeper and office assistant is ready for the undertaker at 36 years and six months, according to the report.

* * *

PREDICT ACUTE CAR SHORTAGE FOR 1923

Continued heavy loading of revenue freight thru November and early December, with car shortage still topping the 100,000 mark daily has led officials of the American Railway Association to believe that the 1919-20 car situation will be paralleled on a higher plane for 1922-1923, says the Iron Trade Review for December 28. This means that the outlook

is for exceptionally heavy loading of freight in the early months of 1923 with no relief in sight until fall. Railway officials are predicting that the period of shortage which began in September of 1922 will prevail thru most of 1923.

If, as some officials believe, freight loading in spring will shatter all records, the car shortage will reach unprecedented heights and exceed the record which is 179,239 for the period October 23 to 31, 1922.



BUILDING RECORDS FOR 1922 STARTLING

Building records for the year show that twice as many dwellings have been built as in any previous year. The number of permits issued in 1922 is also considerably above other years. The number for 1922 is estimated at 160,000; 110,000 for 1921; and 80,000 for 1920.



MEETING OF EASTERN PAVING BRICK MEN

The annual meeting of the Eastern Paving Brick Manufacturers' Association will be held in New York at the Pennsylvania Hotel, January 9 and 10. This organization is a part of the National Paving Brick Manufacturers' Association. Many interesting topics will be brought up for discussion at the New York Meeting.



1922 NOT GOOD YEAR FOR STEEL

Approximately 33,000,000 tons of steel ingots were produced in 1922, says the Iron Trade Review of December 28. In spite of this production, which exceeds that of any prewar year, 1922 can be set down as an unsatisfactory year in iron and steel. When compared with 1916, the year of greatest production the 1922 output is approximately 76 per cent.

Production of all pig iron in 1922 is estimated at 26,850,000. This, however, is only 68.3 per cent. of the high year's pro-

duction. The margin of difference between steel ingots and pig iron may be ascribed in part to the smaller relative proportion of merchant pig iron made during the larger part of 1922.



HOW LABOR IS GROWING SCARCER

An analysis of immigration and emigration "By Occupations" for the ten months' period ending April 30, 1922, shows how the ranks of industrial workers are being depleted.

Occupation (Selected and Skilled Classes)	Arrivals	Departures	U. S. Population	
			Increase	Decrease
Blacksmiths	731	261	470	....
Cabinet Makers	133	124	9	....
Carpenters	2,961	991	1,970	....
Engineers	703	188	515	....
Iron and Steel Workers.	519	172	347	....
Machinists	993	833	160	....
Masons	1,217	328	889	....
Mechanics (not specified)	1,441	620	821	....
Stokers	289	175	114	....
(miscellaneous)				
Farm laborers	8,686	2,269	6,417	....
Farmers	6,379	4,587	1,792	....
LABORERS	26,515	91,036	....	64,521
No occupation (including women and children) ..	111,841	46,435	65,406	....
	162,408	148,019	78,910	64,521

Specifically there has been a net decrease of the population of the United States of those classified as common laborers at the rate of nearly 6,500 per month. Again the balance of immigration and emigration is maintained by matching against this enormous loss of industrial employes a corresponding figure of immigrants having "no occupation (including women and children)."—Bulletin Illinois Manufacturers Association.



The Building Situation

FORECASTING WITH ACCURACY is the business of Roger W. Babson, the well-known statistician, and his views on the building industry, expressed in a recent interview, carry more than ordinary interest. He says: "I look for continued building activity both in residential and business building for the greater part of 1923. Beyond that, I expect a decline. A survey just made by the National Association of Real Estate Boards shows that out of a total of 184 cities scattered over the country, 121 cities still report a housing shortage. This study corroborates the opinion that there is still much residential building to be done, altho the peak may have been passed. For every house that was built in 1921, two have been built this year. The building revival is not confined to houses, either, but includes many more offices, factories, schools, hospitals, in fact, all kinds of construction. Whereas our normal building total is about \$3,000,000,000, the end of this year we shall have built to the extent of \$5,000,000,000."

New England

Building at Boston and vicinity continues active, with commercial operations growing in prominence. There is a marked increase in apartment house construction. Building permits are averaging from \$750,000 to \$1,000,000 weekly for the Boston and suburban district.

Present construction costs are 92 per cent. above the pre-war basis in Massachusetts, according to a recent tabulation by the State Department of Labor. Since January 1, 1922, the cost has increased 27 per cent. There is practically no

unemployment at this time, and a decided scarcity of men is being felt in certain branches of the industry.

Contract awards in the entire New England district have ranged from \$5,000,000 to \$6,000,000 weekly during December, as compared with figures of \$4,000,000 to \$5,000,000 at the same time a year ago.

New York

The outstanding feature of the situation at New York during the past fortnight is the continued heavy demand for building materials. The usual seasonal decline is absent, and with money plentiful and investors in the market, new high records are being attained. Carefully compiled figures show a gross of \$128,149,977 for new construction in Manhattan borough for eleven months of the year just past, as compared with \$112,960,608 in the same period of 1921, an increase of \$15,189,369. The greatest advance, however, is found in the case of Brooklyn, which records a total of \$170,473,205 for new buildings in 1922, as against \$130,810,310 in the same eleven months of 1921.

Brick is receiving primary attention in the New York market, and the intensity of the demand has caused an advance from \$16 to \$17 and \$18, wholesale, alongside dock. At the close of December arrivals were running to 45 and 50 cargoes a week from the Hudson River yards, as compared with 30 to 35 a few weeks ago, indicating the desire of producers to get their material in the market while the river is open.

(Now turn to page 62)

An Uncostly Cost Accounting System

A Complete System Using Only Four Forms Which Has
Been Proven Thoroly Successful in Actual Operation

W. A. Barron

Barron Brick Co., Chicago and Roanoke, Ill.

The September 5 issue of Brick and Clay Record contained an editorial entitled "Secrecy a Bugaboo of Business," in which special attention was called to the injury that can be done to our industry and to ourselves by trying to keep secret any improvement or advantage that we have gained. This editorial closed with this sentence: "We help ourselves by helping our competitor."

That spirit of helping others by helping themselves inspired the Barron Brick Co., with a hollow tile plant at Roanoke, Ill., and main offices in the Tribune Building, Chicago, to permit Brick and Clay Record to publish this complete cost accounting system. The figures are not taken from their records; in fact, they are sample figures put into place to show the operation of the system. This system has been in successful operation for the manufacture of hollow tile for six years, and has been improved and simplified at several points so that today it represents experience and revision and the best practice for this product. It can be changed and enlarged slightly at several points to adapt it to the manufacture of other classes of clay products. At some plants the breakage of the ware in process amounts to a considerable item. In these cases a line can be added below each of the semi-total lines 33, 47, 60 and 74 and a percentage of the cost shown on these lines added before the cost is carried further in the tabulation. The proper percentage to add in each case can be determined easily by keeping proper production records. Our readers are urged to study the steps as explained in the accompanying article for a full understanding.

System Takes Little Time To Operate

After the imaginary figures had been placed in columns B, F, J, N, R, and V, Mr. Barron took his Marchant Calculating Machine and in less than two hours' actual operation, disturbed by several telephone calls and other distractions, arrived at the figures found in columns C, G, K, O, S and W, by dividing the several tonnages into the costs of each item. This is ample proof that the system is not expensive to operate.

The explanation accompanying these sheets is very comprehensive and is intended to be complete. Very often, however, those very familiar with the operation of any cost accounting system know its ins and outs so perfectly that it is difficult to explain all of the details in a space as condensed as this. The Barron Brick Co. therefore will gladly answer any question for additional information, either by correspondence or at their offices. Brick and Clay Record will gladly assist any of its readers in every possible way toward the same end, namely a thoro understanding of the advantages, benefits, and simplicity of the complete cost accounting system presented herewith.

Cost accounting for clay products plants presents different problems than for other industries. The foundations or principles are the same for many lines of manufacture, but the success or failure of the system depends primarily on the details—on how these basic principles are applied to the particular problems involved. In this application the old adage of "Experience Is the Best Teacher" finds its truest use. We have found this particularly true because Brick and Clay Record has had several outlines of cost accounting systems submitted for publication. In practically every instance the author of the articles submitted knew the general principles of cost accounting but had no experience in the clay products industry. We have not accepted these because we felt that a system such as the one described herein is worth infinitely more than an explanation or exposition of a theoretical application of cost accounting principles to our industry.

There can be no question of the practicability of the system of the Barron Brick Co. It has been in use for six years and has been improved in that time. There are no theoretical ideas in it—it is practical from start to finish. The use of imaginary figures to show the method of operating it, makes this article the most serviceable and valuable that can be written, published or gathered on this subject for actual use by any clay products plant, which is operated on the plan followed almost universally in the manufacture of heavy clay products.

Broad-Minded Spirit Is Commendable

We cannot speak too commendably of this broad-minded spirit of the Barron company in this and other instances. This is a case where a manufacturer has spent good money to perfect a system, and has had such good results that he is willing to tell any and all of his competitors and other clay products manufacturers of its benefits and inner workings. The best part of this assistance is that there is no cost at all for any of the advice.

Those who have no cost system and do not take advantage of this magnanimous offer will have only themselves to blame, when at the end of each year their profits are not as large as they expect them to be, on a foundation based on estimated costs.

The Barron Brick Co. know that if their competitors would keep their costs accurately, the prices these competitors would charge in order to show a reasonable profit instead of a loss, would increase the profits of the Barron company more than enough to pay for any trouble toward giving assistance in this direction. The Barron Co. believe in the statement contained in the editorial quoted above, "We help ourselves by helping our competitors." The clay products industry would be in better condition if more believed in and followed this principle.

THE OPERATION of our cost system, the time necessary to give us the resultant figures shown in the accompanying forms, the work of obtaining these detailed figures, which give us the necessary knowledge that enables us to run our plant so as to make the largest possible profit every

day and every year—all of this work under our system takes no more time than usually required for keeping an ordinary set of books. In fact less than three-quarters of one person's time is given to this work.

These statements seem so revolutionary and are so calcu-

lated to take the wind out of the opinion of many who are dubious of the efficiency and benefits to be derived from a good simple cost accounting system that we believe an explanation of the system will be very interesting and instructive thruout the industry. These same men who are dubious of the good results are generally the men who are firmly convinced, with no foundation or experience, that a cost system must be expensive to operate. Every good system adds to the profits far more than it costs.

Study This System Thoroly

There is one suggestion that I feel impelled to make and one thought that should be uppermost in the minds of all reading this article. Cost accounting seems complicated to the inexperienced but simple to those who know its details. The same is true of the carburetor, timing gear, and internal combustion engine, and of the regulation of the valves of a Corliss engine. This article can be digested at one sitting by only a few who are not experienced in cost accounting. It should, therefore, be studied word by word,

and read again and again by everyone. Every time you read it and every time you study the charts you will get a better insight into the simplicity and at the same time the comprehensiveness of this system.

Learned Costs in Explosive Industry

The founder of our company, J. T. Barron, has known for many years the great value of a good cost accounting system from any and every standpoint, on account of his extensive experience in the manufacture of explosives. He learned ahead of time that knowledge of costs is the most important feature in the successful manufacture of clay products just the same as it is in the manufacture of explosives. One of his first actions, therefore, was the investigation of the steps necessary to develop a system as serviceable in the clay industry as the systems in use in the explosive industry. Our present system, which is described in this article is the result of this investigation, altho it has been changed and improved slightly from its first draft.

Our cost system really consists of only four forms or sheets

Works Cost Month of *October* 1922.

SHEET No. 1

	Manufacturing	This Month			Last Mo.		To Date This Year			Last Yr.	
		Quantity <i>A</i>	Amount <i>B</i>	Per Ton <i>C</i>	Per Ton <i>D</i>		Quantity <i>E</i>	Amount <i>F</i>	Per Ton <i>G</i>	Per Ton <i>H</i>	
Labor Oper.	Steam Shovel	1	298 95	069	071			3046 25	074	079	
	Trans. Clay	2	207 89	048	049			2153 26	052	056	
	Dry Pans	3	107 40	025	024			958 75	023	027	
	Screening	4	72 16	017	017			759 64	018	021	
	Pugging	5	86 60	020	019			784 17	019	022	
	Mix Press Cnt	6	371 30	086	090			3957 23	096	112	
	Hacking	7	170 02	039	042			1917 08	047	053	
	Dryer	8	102 10	024	023			1005 10	024	029	
	Total Labor Oper.	9	1416 42	328	335			1458 148	353	398	
Labor Repairs	Steam Shovel	10	18 62	004	005			327 15	008	009	
	Dry Pans	11	108 4	003	004			228 77	005	006	
	Clay Car	12	49 39	011	009			197 56	005	007	
	Pug Mill	13	19 3	001	001			77 20	002	001	
	Bldgs. Equip	14	73 37	017	014			629 17	015	020	
	Total Labor Repairs	15	154 15	036	033			1459 85	035	043	
Mat'l Repairs	Steam Shovel	16	51 5	001	002			125 70	003	004	
	Dry Pans	17	33 0	001	002			78 29	002	002	
	Clay Car	18	108 4	002	002			75 88	002	002	
	Pug Mill	19	17 5	001	001			25 164	001	002	
	Bldgs. Equip.	20	83 45	019	013			500 70	012	015	
	Total Material Repairs	21	104 49	024	020			832 21	020	025	
Mat'ls	Coal	22	391 32	090	101			4599 56	111	099	
	Oil	23	116 47	027	030			122 93	030	031	
	Preventive	24	389 34	090	086			3496 06	085	072	
	Total Materials	25	897 13	207	217			9318 55	226	202	
	Power	26	4813 20	1113	1217			55479 52	1345	1437	
	Distrib. Exps.	27	248 72	057	059			2599 08	063	069	
	Total Mill Cost	28	7634 11	1765	1881			84270 69	2042	2174	
Gen. Exps.	Main Office Superv.	29	362 46	084	086			3742 25	091	115	
	Fire Liability Insurance	30	27 94	006	006			265 90	006	007	
	Depr. Plant Value	31	271 31	063	064			2709 41	066	067	
	Total General Expense	32	661 71	153	156			6717 56	163	189	
	Total Cost Manufacturing	33	8295 82	1918	2037			90988 25	2205	2363	
	Production tons	34	4326				41258				

Sheet No. 1 of the Barron Cost System. The Several Features Are Fully Described in the Text. The Heading on Column H Should Read "To Date Last Year."

Works Cost Month of

October 1922

SHEET No. 2

	Setting—Burning—Loading	This Month			Last Mo.		To Date This Year			Last Yr.	
		Quantity <i>I</i>	Amount <i>J</i>	Per Ton <i>K</i>	Per Ton <i>L</i>		Quantity <i>M</i>	Amount <i>N</i>	Per Ton <i>O</i>	Per Ton <i>P</i>	
Setting	Traos. From Dryer	35	177.92	0.42	0.43			1879.74	0.46	0.48	
	Setting Product	36	1188.70	2.80	2.72			9924.40	2.45	2.53	
	Total Labor Oper.	37	1366.62	3.22	3.15			11804.14	2.91	3.01	
	Labor Repairs Equipment	38	63.04	0.15	0.16			463.47	0.12	0.10	
	Material Repairs Equipment	39	124.77	0.29	0.30			926.25	0.23	0.21	
	Product "Man'd"	40	8150.06	19.18	20.37			89568.90	22.05	23.63	
	Distrib. Exps.	41	82.91	0.19	0.20			866.36	0.21	0.24	
	Total Mill Cost	42	9787.40	23.03	24.18			103629.12	25.52	27.19	
	Main Office Superv.	43	120.82	0.29	0.30			1247.22	0.31	0.38	
	Fira Liability Insurance	44	9.31	0.02	0.02			88.64	0.02	0.02	
	Depr. Plant Value	45	90.44	0.21	0.21			903.41	0.22	0.23	
	Total General Expense	46	220.57	0.52	0.53			2239.27	0.55	0.63	
	Total Cost	47	10007.97	23.55	24.71			105868.39	26.07	27.82	
	Production Tons	48	4250				40614				
Burning	Firing Kilns	49	1030.40	2.31	2.53			12526.77	3.04	3.21	
	Labor Repairs Kilns	50	147.21	0.33	0.35			1777.19	0.43	0.45	
	Material Repairs Kilns	51	91.30	0.20	0.23			1225.63	0.30	0.36	
	Product "Set"	52	10502.50	23.55	24.71			107205.34	26.07	27.82	
	Coal	53	7479.65	16.77	19.47			91753.76	22.31	19.73	
	Distrib. Exps.	54	110.54	0.25	0.26			1155.15	0.28	0.30	
	Total Mill Cost	55	19361.60	43.41	47.55			215643.84	52.43	51.87	
	Main Office Superv.	56	161.09	0.36	0.38			1663.22	0.40	0.51	
	Fira Liability Insurance	57	12.42	0.03	0.03			282.98	0.07	0.03	
	Depr. Plant Value	58	120.58	0.27	0.28			1204.18	0.30	0.29	
	Total General Expense	59	294.09	0.66	0.69			3150.38	0.77	0.83	
	Total Cost	60	19655.69	44.07	48.24			218794.22	53.20	52.70	
	Production Tons	61	4460				41127				
Loading	Unloading Kilns	62	934.73	2.15	2.29			11125.77	2.72	2.93	
	Sorting—Loading	63	379.35	0.87	1.05			7216.56	1.76	1.92	
	Total Labor Oper.	64	1314.08	3.02	3.34			18342.33	4.48	4.85	
	Labor Repairs Equipment	65	65.67	0.15	0.16			765.47	0.18	0.21	
	Material Repairs Equipment	66	71.72	0.17	0.17			651.73	0.16	0.19	
	Product "Burned"	67	19170.89	44.07	48.24			217922.34	53.20	52.70	
	Distrib. Exps.	68	110.54	0.25	0.26			1155.15	0.28	0.30	
	Total Mill Cost	69	20732.90	47.66	52.17			238837.02	58.30	58.25	
	Main Office Superv.	70	161.09	0.37	0.38			1663.22	0.41	0.51	
	Fira Liability Insurance	71	12.42	0.03	0.03			118.18	0.03	0.03	
	Depr. Plant Value	72	120.58	0.28	0.28			1204.18	0.29	0.29	
	Total General Expense	73	294.09	0.68	0.69			2985.58	0.73	0.83	
	Total Cost	74	21026.99	48.34	52.86			241822.60	59.03	59.08	
	Production Tons	75	4350				40963				

Sheet No. 2 of the Barron Cost System. The Several Features Are Fully Described in the Text. The Heading on Column P Should Read "To Date Last Year."

which are illustrated herewith. Sheet No. 1 shows the manufacturing costs up to the point of the dried ware, ready for the kiln. The word "Manufacturing" at the top of the left hand column is meant to be a head and the words in the left hand column are subheads. On sheet No. 2, the words "Setting," "Burning" and "Loading" govern the respective parts shown inside the double lines. On sheet No. 3 the words at the top "Power-Heat-Light" are intended as a head for the part down to and including line No. 101 and the words at the left are subheads. Below line No. 102 the heads are in the left hand columns.

Use Symbols to Designate Accounts

All of our accounts and charges are controlled by the symbol system, that is, in making up the pay roll or in passing any bills for payment a code of initials is used which designates exactly into which ledger account the charge

should be placed. Every item on these sheets has a separate account in the ledger, and as an explanation of the entire list would take up too much space we will explain only those of more common use at all plants.

HTM means hollow tile manufacturing
 HTD means hollow tile drying
 HTS means hollow tile setting
 HTB means hollow tile burning
 HTU means hollow tile unloading
 P means power, heat and light
 D alone means distributive expense
 GE means general expense
 LO means labor in operation
 LR means labor on repairs
 MR means material on repairs
 SS means steam shovel

It will be noticed that these symbols are easy to remember and use because they are really a shorthand description of the account headings. The symbols are combined to designate the several accounts, for instance. LO—SS signifies that the charge should be placed under Labor operating the Steam Shovel shown on line No. 1 of Sheet No. 1 of the attached forms. MR—HTB signifies that the charge should be placed under Material Repairs for Burning Hollow Tile shown on line No. 51 on Sheet No. 2 of the attached forms.

Determining Machine Production

When the books are balanced at the end of each month, the totals of each account are placed in the line corresponding to the account under columns B, J and R. We then determine the figure for our machine production, as shown on line No. 34 in column A. To determine this we deduct the actual dryer loss from the gross machine production. The result is the net machine production in tons as shown on line No. 34.

The tonnages for the setting, burning and loading departments are also found by using similar records of production and loss. It will be noticed that the production figure for Power, Heat and Light and for Distributive Expense and General Expense is the same as for the manufacturing departments.

The production figures on line No. 34 in columns A and E are supposed to be entered on every line from 1 to 33 inclusive. They are entered only in this one place to increase the simplicity of the system. Similarly on sheet No. 2, line No. 48 governs all lines from 35 to 47, line No. 61 governs all lines from 49 to 60 and line No. 75 governs all lines from 62 to 74. Line No. 129 on sheet No. 3 shows tonnage figures for all of the other lines on sheet No. 3.

Dividing the Production Figures

After obtaining the figures for the production of the

Works Cost Month of *October* 1922

SHEET No. 3

	Power—Heat—Light	This Month			Last Mo.		To Date This Year			Last Yr.	
		Quantity Q	Amount R	Per Ton S	Per Ton T		Quantity U	Amount V	Per Ton W	Per Ton X	
Labor Oper.	Boilers 76		324 34	0 15	0 27			3516 26	0 85	0 92	
	Engines 77		204 17	0 47	0 52			2276 79	0 55	0 57	
	Total Labor Oper. 78		528 51	1 22	1 29			5793 05	1 40	1 49	
Labor Repairs	Buildings 79		18 95	0 04	0 04			93 72	0 02	0 03	
	Boilers 80		3 71	0 01	0 01			49 22	0 01	0 01	
	Engines 81		1 47	0 01	0 01			20 50	0 01	0 01	
	Pumps 82		6 58	0 01	0 01			32 77	0 01	0 01	
	Electrical Machinery 83		2 86	0 01	0 01			63 51	0 01	0 02	
	Steam Lines 84		1 84	0 01	0 01			15 63	0 01	0 01	
	Water Lines 85		5 20	0 01	0 01			47 50	0 01	0 01	
	Total Labor Repairs 86		40 61	0 10	0 10			322 85	0 08	0 10	
Mat'l Repairs	Buildings 87		10 76	0 02	0 02			99 21	0 02	0 03	
	Boilers 88		21 00	0 05	0 05			187 50	0 04	0 05	
	Engines 89		1 75	0 01	0 01			15 20	0 01	0 01	
	Pumps 90		3 50	0 01	0 01			25 75	0 01	0 01	
	Electrical Machinery 91		9 37	0 02	0 03			133 16	0 03	0 04	
	Steam Lines 92							76 24	0 02	0 03	
	Water Lines 93							5 27	0 01	0 01	
	Total Material Repairs 94		46 38	0 11	0 12			542 33	0 14	0 18	
Mat'ls	Fuel 95		3738 29	8 64	9 58			4429 27	10 74	11 51	
	Oil Waste Grease 96		38 83	0 09	0 09			349 47	0 08	0 09	
	Water 97		420 58	0 97	0 99			4179 55	10 11	10 66	
	Total Materials Cost 98		4197 70	9 70	10 66			4882 29	11 83	12 60	
	Total Cost 99		4813 20	11 13	12 17			55479 52	13 45	14 37	
	Generated Power	Per Cent									
	Manufacturing 100	96	4620 62	10 68	11 69			53260 34	0 54	1 380	
	General Buildings 101	4	192 52	0 45	0 48			2219 18	1 29	0 57	
Distrib. Exps.	Superintendence 102		225 00	0 52	0 53			2250 00	0 53	0 58	
	Works Office 103		100 00	0 23	0 23			1000 00	0 24	0 27	
	Watchman Gatekeeper 104		76 00	0 18	0 18			760 00	0 18	0 18	
	General Transportation 105										
	Tile Transportation 106										
	Team Maintenance 107		410 7	0 10	0 10			425 75	0 10	0 12	
	Works 108		17 65	0 04	0 04			183 25	0 04	0 04	
	Traveling 109		34 77	0 08	0 10			557 19	0 14	0 17	
	General Buildings 110		14 21	0 03	0 03			153 25	0 04	0 04	
	Shops 111		9 65	0 02	0 02			109 10	0 03	0 03	
	Tools 112		6 36	0 01	0 01			57 20	0 01	0 01	
	Taxes 113		28 00	0 06	0 07			280 00	0 07	0 07	
	Idle Works 114										
	Miscellaneous 115										
	Total Distrib. Expense 116		552 71	1 27	1 31			5775 74	1 40	1 53	
Gen. Exps.	Salaries M. O. 117		2578 33	5 96	6 20			26127 00	6 33	7 93	
	Rent 118		175 00	0 40	0 41			1750 00	0 42	0 40	
	Traveling 119		229 58	0 54	0 58			2586 63	0 61	0 77	
	Telephone—Telegraph 120		67 91	0 16	0 17			884 37	0 22	0 39	
	Stationery Supplies Off. 121		116 77	0 27	0 25			956 20	0 23	0 27	
	Advertising 122				0 20			754 00	0 18	0 25	
	Sundry Accounts to Cost 123							76 21	0 02	0 04	
	Depr. Furniture, Fixtures 124		54 29	0 12	0 13			560 00	0 14	0 15	
	Total M. O. Superv. 125		3221 88	7 45	7 94			33624 41	8 15	10 20	
	Fire Liability Insurance 126		62 09	0 14	0 14			590 90	0 14	0 15	
	Depr. Plant Value 127		602 91	1 39	1 40			6020 91	1 46	1 48	
	Total General Expenses 128		3886 88	8 98	9 48			40236 22	9 75	11 83	
	Production Tons 129		4326					41258			

Sheet No. 3 of the Barron Cost System. The Several Features Are Fully Described in the Text. The Heading on Column X Should Read "To Date Last Year."

various departments we divide these several figures into the amounts charged against each account as shown on the several lines in columns B, J and R, and set down the quotients obtained on the same lines in columns C, K and S.

Some of these lines contain total figures. For instance the figures on line No. 9 are the total of all the figures on lines from No. 1 to No. 8. Similarly Lines No. 10 to 14 are totalled on line No. 15. Lines No. 16 to 20 are totalled on line No. 21. Lines No. 22 to 24 are totalled on line No. 25. Lines No. 9, 15, 21, 25, 26 and 27 are totalled on line No. 28. Lines No. 29 to 31 are totalled on line No. 32. Line No. 33 contains totals of the figures on lines No. 28 and 32.

On Sheet No. 2 lines No. 35 and 36 are totalled on line 37. Then lines No. 37 to 41 are totalled on line No. 42. Lines No. 43 to 45 are totalled on line No. 46. Lines 42 and 46 are added together and the total placed on line No. 47. Lines No. 49 to 54 are totalled and the results placed on line No. 55. Lines No. 56 to 58 are totalled on line No. 59. Line No. 60 contains the totals of lines 55 and 59. Lines 62 and 63 are added and the result placed on line 64. Lines 64 to 68 are added and the result placed on line 69. Lines 70 to 72 are added and the result placed on line 73. Lines 69 and 73 are added together and the result placed on line 74.

Dividing Overhead

Sheet No. 3 contains the overhead items that must be divided up among the several departments. Lines No. 76 and 77 are added and the result placed on line No. 78. Lines No. 79 to 85 are added and the result placed on line No. 86. Lines No. 87 to 93 are totalled and the result placed on line No. 94. Lines No. 95 to 97 are totalled and the result placed on line No. 98. Lines 78, 86, 94 and 98 are totalled and the result placed on line 99. The totals on this line are then transferred to line 26 on Sheet No. 1. This is the only source for the information or figures shown on line 26.

The figures on lines 100 and 101 are not used except as advisory figures. They simply show an approximate division by percentages of the cost of power and light separately. Lines 102 to 115 are totalled on line 116. These totals on line 116 are Distributive Expenses and must be divided into the several departments in order to have each bear its proper proportion. This division is made as follows: 45 per cent. to the manufacturing departments is added on line 27 on Sheet No. 1; 15 per cent. to the Setting Department on line 41; 20 per cent. to the Burning Department on line 54; and 20 per cent. to the Loading Department on line 68. These last three entries are all located on Sheet No. 2. Each plant should use its own percentage figures.

Charging "Main Office" Expense

Returning to Sheet No. 3 we find that lines 117 to 124 are totalled and the result placed on line No. 125. The abbreviation M.O. on lines No. 117 and No. 125 stand for Main Office. This item of "Main Office Supervision" is divided, 75 per cent. of it being charged to selling and is subdivided according to the tonnage of the various products. We will explain this division as shown on Sheet No. 4 later. The remaining 25 per cent. of line No. 125 is charged to factory operations. This 25 per cent. is divided up on the same basis as the distributive expenses, that is 45 per cent. to manufacturing, 15 per cent. to setting, and 20 per cent. to each of the other two departments, burning and loading. These last two figures, therefore, amount to exactly five per cent. of the total found on line No. 125. These four divisions, into which the 25 per cent. of the Main Office Supervision chargeable to factory operations is divided, are entered on lines 29 on Sheet No. 1 and 43, 56 and 70 on Sheet No. 2. Line 128 contains the total of lines 125, 126 and 127.

The amounts shown on lines 126 and 127 are divided on the same percentage as used on all of the other overhead charges, namely 45 per cent. to manufacturing (Lines 30 and

31), 15 per cent. to setting (Lines 44 and 45), and 20 per cent. to each burning (Lines 57 and 58) and loading (Lines 71 and 72).

Cost of Setting the Ware

On line No. 33, of column C we find the price per ton, for the ware manufactured and dried ready to be set, to be \$1.918. This is figured on a basis of an output of 4,326 tons. The setting output is 4,250 tons, so that in order to determine the dollar and cents amount to enter on line No. 40 in column J, we multiply \$1.918 by 4,250 and obtain \$8,150.06 (which is the amount entered there). Likewise the cost per ton of the ware set ready to be burned as shown on line No. 47 of column K is \$2.355. This figure multiplied by the output of the burning department, 4,460 gives the amount spent for that many tons of ware up to that point. The result, \$10,502.50, is entered on line No. 52 of column J. Again the cost per ton of ware burned in the kiln, ready to be taken out as shown on line No. 60, in column K is \$4.407. This figure multiplied by the tonnage output of the loading department, 4,350 gives \$19,170.89, which is the total amount spent for producing that number of tons up to the point where the ware is ready to be taken out of the kiln and is entered on line No. 67 of column J. The costs per ton as shown in columns C, K and S were originally worked out to five points to the right of the decimal, or to thousands of a cent, as this is the method we always use. However, in order to make the explanation of the system as easy as possible we have used only three places or only as far as tenths of a cent. The multiplications, explained in this paragraph, therefore, may not work out exactly to the cent. We explain this in order to avoid any misunderstanding of our explanation.

Figures for Previous Month

Having explained how each figure entered under this month is arrived at, we will pass on to the other columns. The figures in columns D, L and T are the figures that appeared in columns C, K and S of the previous month, in this case September. Columns E, F and G of Sheet No. 1; M, N and

ROANOKE WORKS

SUMMARY OF

		PROCEEDS				SUMMARY OF BUSI	
Number	Kind	Wt. Each	Tons Quantity	Amount	Per Ton	Amount	
9 800	3x12x12 Part	15	735	588.00	800	3553	
5 200	4x "	16	416				
18 700	5x "	19	17765				
39 900	6x "	22	4389				
13 400	7x "	26	1807				
47 800	8x "	30	717				
23 000	10x "	35	4025				
15 600	12x "	42	3276				
30 000	4x5x12 Backup	8	120				
9 700	4x8x12 "	12	582				
7 100	5x8x12 "	14	497				
1500	16x12x12 Upl. Burn	73	5625				
2500	2x12x12 "	10	10				
59 200	8x12x12 Load Burn	34	10064				
83 900	14x12x12 "	48	20136				
			5622975				
SUMMARY OF BUSI							
15 200	2x12x12 Part	12	912	78432	860	53835	
88 200	3x "	15	6615				
75 300	4x "	16	6024				
125 600	5x "	19	11932				
214 900	6x "	22	23639				
33 500	7x "	26	4355				
259 500	8x "	30	38925				
11 300	9x "	33	18645				
325 600	10x "	35	5698				
111 100	12x "	42	23331				
527 600	4x5x12 Backup	8	21104				
79 300	4x8x12 "	12	4758				
125 700	5x8x12 "	14	8799				
22 500	16x12x12 Upl. Burn	73	84375				
46 200	2x12x12 "	8	1848				
355 200	8x12x12 Load Burn	34	60384				
503 400	14x12x12 "	48	120816				
57800	5x8x12 "	16	4624				
			39775425				

Sheet No. 4 of the Barron Cost System, on Which All of the Costs and Profits Are Shown. The Figures in the Columns to the Right of the Balance Sheet Column Must Be Styled the Balance Sheet.

O of Sheet No. 2; and U, V and W of Sheet 3 contain in each corresponding place the totals of the amounts that have appeared in columns A, B and C of Sheet No. 1; I, J and K of Sheet No. 2; and Q, R and S of Sheet No. 3, for all of the months of the present year from January up to and including the present month. In this case these columns contain totals for ten months.

The last column of each sheet, namely columns H, P and X, contain the corresponding costs for each item to date for the past year, in this case 1921. These comparisons with past records can be enlarged upon very easily by adding other columns for various periods.

A study of these figures will reveal some interesting sidelights, even tho they are imaginative. For instance on line 33 of Sheet No. 1 we find:

Column H Cost (manufactured and dried) for the
first ten months of 1921.....\$2.363

Column G Cost (manufactured and dried) for first ten months of 1922.....	2.205
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Column D Cost (manufactured and dried) for September, 1922	2.037
--	-------

Column C Cost (manufactured and dried) for October, 1922	1.918
--	-------

These figures indicate that the cost up to this point is steadily being reduced, that the cost during the first ten months of 1922 were almost as high as the corresponding cost of 1921, but that evidently since then steps have been taken to reduce this and that they have been so successful that the cost during the month just past is 44.5 cents lower than it was for the ten months of 1921. This equals almost 19 per cent. of the 1921 cost and of course such a saving as this is very commendable. In examining the individual items we find almost a steady decrease in each, but notice that line No. 12 shows a higher cost for the present month than in 1921. This is a labor repair item and since the increase is slight, and may easily be caused by more cars for repair we will not investigate this increase any further. Line No. 24 also shows an increase for the present month compared to the months to date in 1921. If the standard amount of this

preventive to be used per ton of ware has been increased the increase may account for this larger cost per unit. Again an increase in the cost of the preventive delivered may account for this increased cost per unit. The exact cause of this increase should be looked into and if wrong should be corrected.

Comparing the Costs

Line No. 36 on Sheet No. 2 shows a variation in costs that surely demands a thoro examination. This item shows the following comparisons:

Column P	Labor for setting product for the entire	
year 1921	.....	\$0.253

Column O	Labor for setting product for first ten months of 1922	0.245
----------	--	-------

Column L Labor for setting product for September, 1922	0.272
--	-------

Column K	Labor for setting product for October,	
1922	.....	0.280

A study of these figures indicates that the cost for the first few months of 1922 must have been quite low, especially in view of the fact that the October cost is 3.5 cents and the September cost 2.7 cents higher than the cost for the entire first ten months of 1922, that is of the present year up to date. Since the cost for 1921 was lower than the cost for the past two months there seems to be something radically wrong with the present cost of labor for setting. This demands an immediate and thoro examination. Possibly this same condition showed up on the September report. If so, the examination and investigation made at that time may not have been as complete as it should have been, because the cost increased eight-tenths of a cent or three per cent. during the past month of October.

Sheet No. 4

Sheet No. 4 requires little explanation. The upper part gives figures for the past month only, and the lower part the cumulative figures for the current year up to date, including the month whose figures are shown in the upper part. Columns I, II, III and V are filled in from the sales records, the unit weights being decided upon by the Western Railway Weighing Association. The figures in column IV are found by multiplying together the figures in columns I and III. The figures in column VI are found by dividing column IV into column V. The figure in column VIII is taken from line No. 74 of column K on Sheet No. 2. The figures in column VII are found by multiplying together columns VIII and IV. The figures for column X are copied from the account book or sheet on which the freight charged to each shipment is posted and later tabulated and totalled. Multiplying column X by column IV gives us column IX.

If we refer back to the explanation of the division of the total amounts found on line No. 125 of Sheet No. 3, we will find that we said that we charge 75 per cent. of the total shown there to selling or distribution. This 75 per cent. is entered in column XII of sheet No. 4. To do this we divide the total tonnage sold in any month, as found at the bottom of column IV on sheet No. 4, 5,622.975 into the figure found by taking 75 per cent. of the amount found on line No. 125 of column R. on sheet No. 3. This figure is \$3,221.88 and 75 per cent. of this amount is \$2,416.41. \$2,416.41 divided by 5,622.975 tons equals \$0.430, which is the amount entered in column XII. This latter amount multiplied by the figures in column IV gives the total amount spent for that part of main office supervision devoted to selling this item, in this case amounting to \$31.61.

Finding the Margin of Profit

In order to arrive at the figure in column XIII, we add together the figures found in columns VII, IX and XI. This

(Note turn to page 64)

[illegible]

wn. This Is Indeed the Summary of the Business, and Can Properly and Appropri-
ately Sheet of the System.



Clay Manufacturers from the Land of the Maple Leaf, Who Will Meet in Hamilton, Ont., January 23, 24 and 25, 1923.

Rousing Canadian Meeting Assured

Two Big Associations to Meet in Joint Convention at Hamilton—Will Devote Much Time to Production and Management Problems

HAMILTON, ONT., will this year be the scene of what will undoubtedly be the largest gathering of Canadian clay products manufacturers in the history of the Dominion. The reason for this optimistic view is that the two big Canadian associations, the Canadian National Clay Products Association and Western Ontario Clay Workers' Association will meet in joint convention. The dates of the meeting are January 23, 24 and 25, 1923.

The Royal Connaught Hotel at Hamilton has been selected as headquarters and the facilities at this hostelry are such that delegates will undoubtedly find their stay pleasant. All sessions, luncheons and the banquet will be held in the beautiful banquet hall of the hotel.

Sessions will open Tuesday morning, January 23. The usual procedure will be changed somewhat and the Canadian National Clay Products Association will elect its new officers on the closing day of the convention.

Visits to Plants in Hamilton

The second day of the convention, Wednesday, January 24, will be in charge of the Western Ontario Clay Workers' Association and the morning sessions will be conducted by that organization. The afternoon promises to be especially interesting as arrangements have been made to visit plants in Hamilton. Among these are the Canadian Porcelain Works, Campbell's & Sons Pottery, Libby-Owens Sheet Glass Works and the plant of the Hamilton & Toronto Sewer Pipe Co. These plants are thoroly modern and contain many features of interest and visitors will find it to their advantage to see as many of these plants as possible.

Not everything on the convention program is serious business, however. On Wednesday evening the annual banquet will take place and clay workers will have an opportunity to

get together with their fellow workers. There will also be noon luncheons at which prominent gentlemen will speak.

Topics Are of Great Interest

The program for papers and discussions contains extremely interesting topics which are of direct and vital interest to the manufacturer of clay products. The authors of these papers have not as yet been announced but they will be men whose experience will give their words considerable weight. Among the papers to be presented are:

Burning Clay Products with Oil; Power Shovels (Steam and Electric); Fire Prevention; Insurance; Compensation; Kiln Bracing; Getting Soft Mud Brick Production; Simplified Clay Plant Accounting; Results Obtained with Pyrometers; Economical Tile Production; Drilling Shale.

There will be opportunity to discuss these subjects and a round table talk will be held during the course of which many subjects will be introduced for consideration. If any clay manufacturers have some particular problem which they would like to have discussed this can be arranged by sending the questions to G. C. Keith, secretary, Canadian National Clay Products' Association, 49 Turner Road, Toronto.

C. N. C. P. A. 21 Years Old

An interesting feature of this year's convention of the C. N. C. P. A. is that it will be the occasion of the "coming-of-age" of that organization, having successfully reached its twenty-first mile stone. The Western Ontario Clay Workers' Association, on the other hand will celebrate its silver jubilee, that organization having been formed 25 years ago.

Delegates to the 1923 convention will in all probability have the privilege and pleasure of hearing Joseph Keele of Ottawa tell of his visit to Australia, from which country he returned

recently. Mr. Keele visited many clay plants in Australia and he will have some interesting tales to tell.

The selection of Hamilton for the annual convention is a happy choice as that city is one of the most interesting cities in Canada, from the clay products manufacturers viewpoint. Almost all types of products are manufactured either in the city or vicinity. Among these are included, hollow tile, interlocking tile, drain tile, sewer pipe, face and common brick, fine and coarse porcelains, glass and other ceramic wares. The plants are accessible either by street car or are within easy reach by motor or railway. Among them will be found some of the most up-to-date establishments on the continent.

All clay products manufacturers of Canada are cordially invited to attend this joint convention whether or not they are members of either association.



KIND REMEMBRANCES FROM MANY FRIENDS

Every year at New Year's time Brick and Clay Record is reminded of the host of friends and well-wishers it has in the clay products industry. Greetings from readers in all parts of the country have been received and Brick and Clay Record wishes to thank its many friends for their kind expressions and to wish them a most happy and prosperous 1923.

Very attractive and useful calendars have been received from the U. S. Brick Co., Tell City, Ind.; Roesslacher & Hasslacher Chemical Co., New York; E. M. Freese & Co., Galion, Ohio; Cannelton (Ind.) Sewer Pipe Co. and Thew Shovel Co., Lorain, Ohio.

The Clippert Brick Co., of Detroit, Mich., has this year again presented a desk accessory of beautiful bronze. The gift is an ash tray and match holder. Last year the company sent a bronze paper knife which matches this year's remembrance.

Cards of greeting have been received from the American Face Brick Association; A. Leschen & Sons Rope Co., St. Louis, Mo.; Alberhill Coal & Clay Co., Los Angeles, Cal.; Sterling Brick Co., Olean, N. Y.; Schofield-Burkett Construction Co., Macon, Ga.; C. Forrest Tefft, Fiske & Co., Watsontown, Pa.; Colonial Brick Co., Detroit, Mich.; Mr. and Mrs. Howard Frost, Los Angeles, Cal.; J. W. Lehman, Columbus, Ohio; Elias Petts, Baltimore (Md.) Brick Co.; Bloomfield (Ind.) Brick Co.; Eastern Paving Brick Manufacturers' Association; Rochester (Pa.) Clay Products Co. and E. C. Howard, manager, Columbus (Ohio) Fire & Face Brick Co.



CLEVELAND SUPPLY MEN'S ANNUAL

Annual meeting of the Supply Dealers Board of Cleveland was held at Hotel Hollenden, Cleveland, Ohio, December 18. The event included a dinner, entertainment by professional talent, humorous stories by members, including Joe Gorman, Armstrong Sewer Pipe Co.; George Donley, the Donley Brothers Co.; William Rolf, Rolf Builders Supply Co., and many others.

The feature was a play put on by Gordon Murray, the Harris-Murray Co.; A. C. Stewart, the American Gypsum Co.; Dana P. Bowen, the Bowen Brick Sales Co., and Harold F. Kemper, the Kemper Material Co. The play was a burlesque on some members of the brick and building materials industry in Cleveland.

At this meeting a new board of directors was elected. They are: Leo A. Krueger, Cleveland Clay Products Co.; A. L. Goldman, Builders' Supply & Fuel Co.; E. G. Barnett, Geist Building Material Co.; H. G. Renker, Ideal Products Co.; C. A. Donley, Donley Brothers Co.; J. M. Walters, Akron Sewer Pipe Co.; W. H. Crangle, Collinwood Shale Brick & Supply Co.; Fred Herot, Herot Builders' Supply Co.

At the initial meeting of the board the following were named as officers: President, A. O. Preyer, the Goff-Kirby Co.; vice-president, E. G. Barnett; treasurer, Leo A. Krueger.

Conventions in Prospect

January 23, 24 and 25—Canadian National Clay Products Association and Western Ontario Clayworkers' Association, Hotel Connaught, Hamilton, Ont.

January 24 and 25—Wisconsin Clay Manufacturers' Association, Republican House, Milwaukee, Wis.

January 25 and 26—Hollow Building Tile Association, Drake Hotel, Chicago, Ill.

January 29, 30 and 31—Ontario Farm Drainage Association, Chamber of Commerce, Chatham, Ontario.

February 5, 6 and 7—Common Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 8, 9 and 10—National Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 12, 13, 14, 15, 16 and 17—American Ceramic Society, William Penn Hotel, Pittsburgh, Pa.

February 14—Ohio Drain Tile Association, Columbus, Ohio. (Plans Not Yet Definite.)

February—Iowa Clay Products Manufacturers' Association, Des Moines, Ia. (Date Not Set.)

"FARMERS' WEEK" AT UNIVERSITY OF ILLINOIS

On January 22 the College of Agriculture at the University of Illinois will begin what is known as "Farmers' Week." This will last until January 26. The program for this meeting is built up around the farm as a unit. There will be much of interest to clay products manufacturers who find a market among the farmers. The Central and Western Passenger Associations have for this occasion granted reduced railroad fares of a fare and one-half for a round trip from all stations in Illinois and from St. Louis, Mo., to Urbana and Champaign. Any manufacturer desiring to erect a hollow tile exhibit will find the university very willing to cooperate. There is no charge for space.



DRAIN TILE MEN WILL MEET IN FEBRUARY

Steps are being taken to hold the annual meeting of the Ohio Drain Tile Association in Columbus the second Wednesday in February. Announcements to that effect will go out soon from the office of the secretary at Lima, Ohio.



SILVER JUBILEE OF A. C. S.

The twenty-fifth annual meeting of the American Ceramic Society, to be celebrated as the Silver Jubilee Convention, promises to be the largest and most important gathering the society has ever held. Many valuable and interesting papers will be presented at the various group meetings as well as at the general sessions. On the last days of the meeting various plants in Pittsburgh will be visited. This year's meeting will afford unusual opportunity to gather helpful ideas and meet in good-fellowship gatherings. The meetings will be held in the Fort Pitt and William Penn Hotels, Pittsburgh, Pa., February 12, 13 and 14. Plant visits will be made on Thursday and Friday, February 15 and 16.

HOW LONG CAN WOOD LAST?

Henry Ford has just bought a 400,000 acre forest in the upper peninsula of Michigan and has built a logging camp and mill so that the ever increasing shortage of timber will not interfere with the production of wood bodies for his car, according to E. G. Kingsford, manager of the subsidiary company conducting the forest operations, who says, "Mr. Ford does not desire to have his business in any way dependent upon a disappearing supply of raw wood."

"It is announcements like this that will eventually wake the people up to demand some national regulation to stop the awful waste of lumber still going on; using less wood for building purposes would leave an ample supply for industries to which wood is indispensable," commented Wm. Schlake, head of the Illinois Brick Co., Chicago, the largest brick company in the world. "Many million feet of lumber are still used every year for wood homes and other buildings. Wood is a good building material but wooden walls exposed to the elements deteriorate quickly, and statistics show that such buildings are replaced at intervals of about 30 to 40 years. Making the outside walls of buildings of stone, brick, or other masonry not only saves the amount of wood, but it trebles and quadruples the life of every piece of wood inside the building. Wood protected from the elements lasts indefinitely, and only in such places should

wood be used. That is the real way to conserve the wood supply. To insist that all buildings have masonry walls would not work a hardship on anyone," he continued, "for the small home owner soon finds that the slight extra cost is soon wiped out because of the savings in upkeep expense and slower depreciation."—Bulletin, Common Brick Manufacturers' Association.

* * *

NO STRIKES MEAN MUCH BUILDING

The result to be obtained when satisfactory labor conditions are effected in the building construction field, is decidedly apparent in Indianapolis. During the year just passing there has not been a labor difference during the entire year in the building trades. There were contracts to negotiate, but they all were negotiated amicably and no time was lost. This is the first year since the building trades have become organized that there has been no loss of time because of strikes in Indianapolis. And the year has seen every record for building broken. This situation was brought about largely by the work of the Associated Building Contractors of Indianapolis. There have been more permits issued, for a much bigger valuation, representing a larger amount per permit than ever in the history of Indianapolis. The trade has profited hugely by this action.

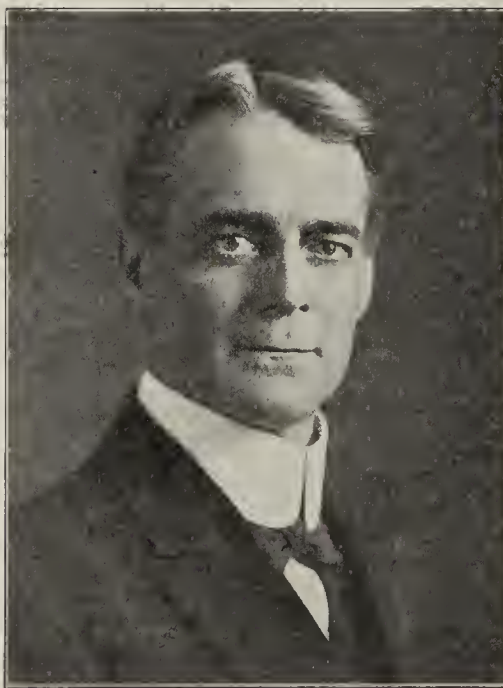
Introducing "Accounting Simplified"

IN PRESENTING to the readers of Brick and Clay Record the series of articles which were promised some time ago on Accounting Simplified by G. W. Greenwood, it is done with the confidence and faith that the system is the best that is available to the clay products industry. Many offers of articles have been received by Brick and Clay Record from industrial engineers, certified public accountants and others who claim to have short-cut and efficient systems. Some of these offers were from men who have had considerable experience in the clay products industry. But all were rejected in favor of Mr. Greenwood's system.

In judging any accounting system, these vital features must be given consideration: Is it written from the standpoint of the clay products manufacturer or is it general? Does the system permit accounting to be carried on to any desired completeness with the minimum of labor, time and cost? Must "expert" aid at \$25 or more a day be necessary to install a simplified (?) system? These and other questions were considered in making the choice of the author and we are proud to say he stands highest of all other prospective contributors.

Mr. Greenwood at an early age commenced working at the office of a brick plant. A few years later without much preliminary training, he applied for admission to Oxford University, England. After four years of study he received the Degree of B. A. from that ancient and well known institution, with a First Class in their Honor School of Mathematics, followed later with a degree of M. A. While an undergraduate, Mr. Greenwood was invited to a meeting of the Oxford Mathematical Society composed of professors and fellows of the University, to read a paper on some original research matter along mathematical lines. This was before the days of Rhodes' Scholarships, and Americans were a rarity at Oxford.

For one-half dozen years following graduation, Mr. Green-



G. W. GREENWOOD

wood was in charge of College courses in mathematics and astronomy, making frequent contributions to mathematical journals. His solutions to problems were characterized by brevity and simplicity.

Later, Mr. Greenwood returned to the brick industry, filling successively positions as author, auditor, secretary, treasurer, and manager. During this period he was a regular contributor to magazines dealing with better accounting methods and cost records. He is now giving all of his time to accounting, specializing in simplified systems such as those to be described in the series that will be published. His business experience and mathematical training has uniquely qualified Mr. Greenwood in accounting simplification.

One of the persons in the clay industry that Mr. Greenwood has counselled on accounting methods and whom we asked for a frank opinion of Mr. Greenwood's ability to write a series of articles on Accounting Simplified, is E. F. Myers, president and treasurer of the Ironton Fire Brick Co. He said, "We are sure that these articles will prove intensely interesting

to those interested in accounting because Mr. Greenwood is not only thoroly conversant with the subject, but can express himself and bring out the salient points as few men can.

"We have adopted some of his suggestions and methods in our accounting which have resulted in a material saving of labor as well as having given us the desired information in a more satisfactory manner.

"We feel sure that there is no other series of articles that you could run in your paper that will be more interesting or prove more beneficial to clay products manufacturers, than those which you contemplate on Accounting Simplified by Mr. Greenwood."

Questions will gladly be answered so far as is practical and discussion is invited by the author.

Accounting Simplified

Detailed Description of a System of Accounting
Which Supplies All Information Desired at the
Least Expenditure of Time, Labor and Money

G. W. Greenwood

Treasurer, United Refractories Co., Dunbar, Pa.

Chapter I. — INTRODUCTION

MANY a practical business man, when an accounting system is mentioned, has visions of a complicated, unintelligible array of forms, which simply add to the expense of the business but which do not bring in any additional income, or aid in its management; he is apt to regard the work of accountants as similar to the feat ascribed by the darkey preacher to Moses—"He led his people into the wilderness, and left them there!"—

These impressions are unfortunately many times well founded.

The object of this series of articles is to outline a method of accounting which gives to the management all information required concerning the business, but without wasting time, money and effort in collecting information which is not desired and which may not be used; and at the same time to furnish the required information by methods simpler, clearer and with less expenditure of time and money than are involved in the system of bookkeeping which they may be using at the present time.

A Tried and Tested Method

The methods to be described are not mere recent experiments, but have been used for years, under conditions calculated to put the acid test on any plan of keeping books; with suitable modifications it has been used in different lines of business, with uniform success; and the claims here made are based on these varied applications.

Where there is a double entry system in use at present (and a single entry set of books is of too little value to be classed as a system), it is the belief of the writer that the plans to be described will

- (a) furnish all information given by the system in use at present, but with less work and consequently at a less expense; or
- (b) give more information at no greater expenditure of time and money; or
- (c) afford any additional information desired at the least possible cost.

The system applies equally well, with necessary minor changes, to a factory making any line of goods, to a general store, in fact to any business which does, or should, keep books.

System Adaptable to Any Plants

It has been used by a factory with one plant, and by another with several different operations; it is in use where the operating expenses are distributed among a few different classes, and again where the distributions cover hundreds of different items; where the firms handle a single commodity, such as common red brick, and where the sales are divided into a score of distinct lines.

It simplifies the posting of ledgers, cutting down this work from ten to fully fifty per cent.; postings are made to the general ledger from a single source, instead of from many sources; and the number of accounts carried in the general

ledger is greatly reduced, without sacrificing any desired information; in fact, with an increase in the information over that obtained by customary methods.

Advantages of the System

It makes easier the taking off of trial balances; it sets forth in clearer form the current operating, administrative and selling expenses so that one can readily see the total charges for the month, and for previous months; he can see the separate individual items which make up the monthly charges and can compare any single item of expense with the charge for previous months. For instance, he can compare his telephone expense for a month with those for preceding months. In one case where the system has been in use for years, it is possible just by running one's eye along a single horizontal line, to trace the rise and fall of any single item of expense listed—salaries, office expense, repairs, and so forth—throughout these years.

It makes it possible to get out monthly financial and operating statements more promptly; for example, in one case where a commodity is bought and sold in car load lots (but which is not handled by the company so there are no inventories to deal with), it is possible to have these enlightening statements on the first day of the following month provided all bills have been received by the last day of the month covered.

Involves No Great Expense

Finally, there is one other important point; when an accounting system is considered, one finds at times that it involves the outlay of a considerable amount of money for bookkeeping machines and other mechanical devices; or that it requires the purchasing of a lot of expensive special forms which an accountant draws up after a few weeks study of the business, and which a few months use show to be ill adapted to the work.

Where mechanical helps are already in use, this system will fit in with them admirably. But it will not be necessary to purchase any new equipment whatever in order to make use of these simplifications. Neither will it be necessary to purchase a quantity of specially ruled and printed forms; the cost of the forms used will not amount to a dollar a month.

Test Out the System

This is a statement of the case we will attempt to prove, and the verdict we will be quite content to leave in the hands of those who may follow the series.

There will also be outlined a method by which each may test out these plans in connection with his own business, and without in any way changing his present accounting system, until he finds for himself what advantage there is for him in the system here described.

A man once stated that he would not be able to put on his new shoes until he had worn them a few weeks. In the present case, it will be found that one can try out the system for a few months before putting it into effect.

We are now ready to write in the headings of the pairs of columns, beginning with the pair next to the descriptive space, as follows:

GENERAL LEDGER
SALES
ACCOUNTS RECEIVABLE
BANK
CASH
ACCOUNTS PAYABLE
EXPENSES

The arrangement of the columns is of course a matter of choice, but it will be found that an arrangement similar to this will place together the pairs which are most frequently associated in making entries.

Entering Items

We will now consider a number of illustrative entries.

February 1. Shipped to *John-Thomas Construction Co.* a car of brick invoiced at \$176.90.

We write the name, *John-Thomas Construction Co.*, in the descriptive space to the left, and under "SALES," in the right, or credit, column we insert the amount, \$176.90. Also, under "ACCOUNTS RECEIVABLE," in the left, or debit, column we insert the same amount. Suppose the number of the sale, or shipment, is 160; the middle space under "SALES" affords a convenient place in which to insert this reference number.

February 2. Received from *City Building Co.* their check for \$251.75 which was deposited in the bank, applying to their account for January.

Credit this company as shown under "ACCOUNTS RECEIVABLE" and charge to "BANK."

Some might prefer to charge this item to "CASH," and then to make another entry when the deposit is made. In the writer's experience there has never appeared to be any advantage in this additional work.

February 3. Received from the *Higrade Coal Co.* a car of coal, covered by their invoice for \$261.15. Credit this company under "ACCOUNTS PAYABLE" and charge this amount under "EXPENSE."

Where This System Differs

Right here is where we take the first of several steps in parting company with complicated accounting systems. All administrative, selling and operative expenses are unceremoniously dumped into this one column (in plants with a

large classification of accounts a few more expense columns are required); but in the middle column is placed a symbol classifying the charge. In this initial case the following letters will be used for the purpose of illustration:

- a Salaries of executive or superintendent
- b All labor except that used in repairs
- c Raw material purchased
- d Discount received or allowed for anticipated payment of invoices
- f Fuel
- g Supplies
- h Tools
- i Interest paid or received
- l Live stock supplies
- m Office salaries
- n Office rent and supplies
- p Fire insurance
- r Repairs
- s Selling expense
- t Telephone and telegraph (and wireless)
- y Rent received from company houses

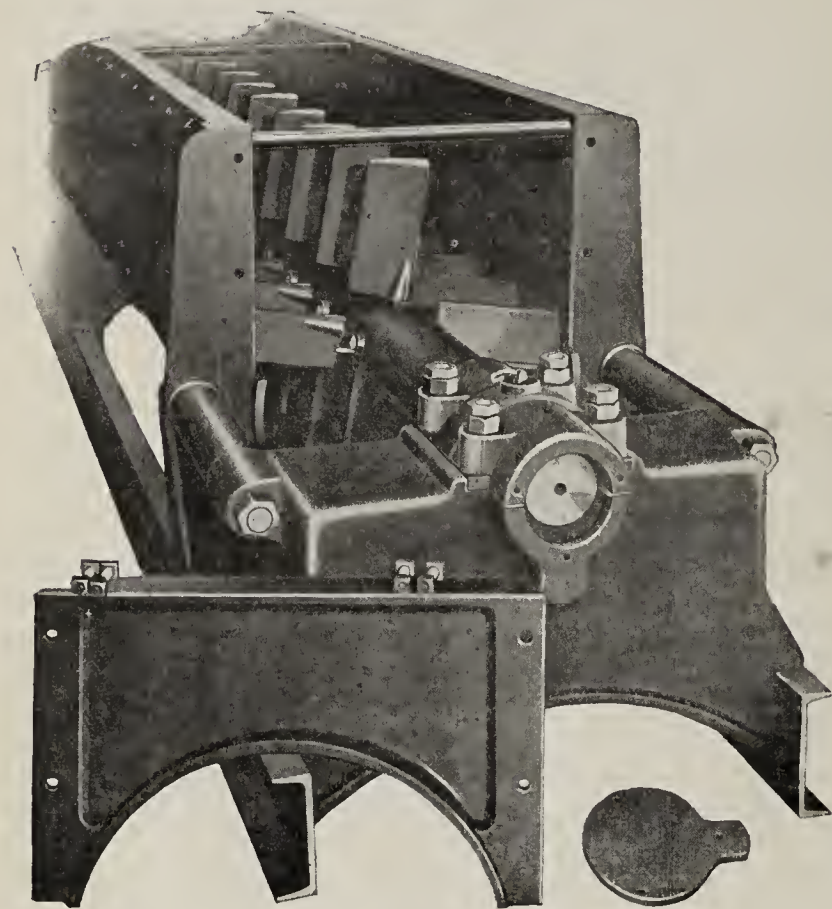
Handling the Expense Column

Let us take time out here to discuss this "EXPENSE" column. All items of expense, as they are inserted here, are keyed and picked up later, the recapitulation being shown elsewhere and to far better advantage than if they were carried in the general ledger. It is somewhat like the mail sack which is thrown off a passing train; the mail clerk is interested only in the fact that a particular letter is destined to that town; the local post office sorts the letters according to routes, and the rural carriers sort them according to boxes en route; possibly the family receiving the morning mail makes a further classification by individuals. What if any part of this distribution were placed on the shoulders of the railway mail clerk, requiring him to distribute the contents of the sacks by routes or box numbers or patrons of the local office? Yet this is similar to the requirement that the general ledger be made the distributing agency for operating, or other expense accounts. In this system the "EXPENSE" column represents the mail sack into which all expense items are thrown, each properly labeled for further distribution by simpler processes, as will appear later.

February 5. Sold to *John Doe Building Co.*, sale number 161, material amounting to \$200, for which payment was received in actual cash less a trade discount of 2 per cent.

Figure 2. Right Hand Page of Cash Journal and Operating Register. The Full Sheet Is 11 by 14 Inches.

International ma



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Why not take advantage of our engineering service in your plant-betterment work.

Do you realize that engineers who have our new line of auger machines, pug mills, dryer cars, etc. (the simplest, strongest, and lowest cost for upkeep equipment now made) can offer service to you in reducing your operating costs through better methods of procedure, as well as the installation of simpler and more lasting equipment.

Our engineers and construction men have solved through the mill of plant betterment problems. Why not take advantage of their experience.

If you want engineering service, a single machine or complete equipment from clay bank to dryer cars, our service is at your call.



INTERNATIONAL CLAY MACHINERY

NEW YORK

DAYTON-OHIO

PITTSBURGH

TORONTO-CANADA



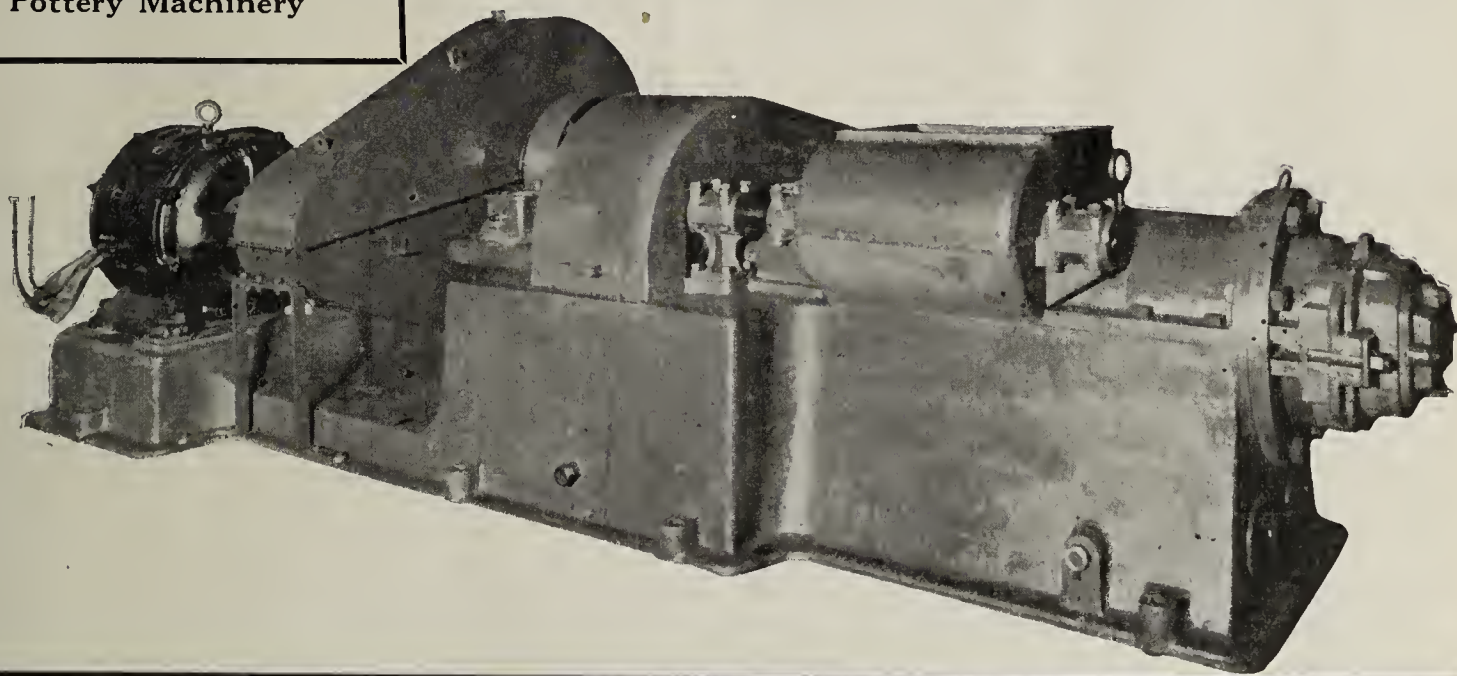
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Dry Pans
Crushers
Disintegrators
Cutting Tables
Berg Dry Press
Dryer - Waste Heat
Dryer - Metallic Radiation
Dryer - Producer Gas
Dryer Cars
Represses
Clay Feeders
Screens
Elevators
Conveyors
Hoists
Dump Cars
Transfer Cars
Turntables
Continuous Kilns
Periodic Kilns
Roofing Tile Machinery
Trackage
Transmission
Pottery Machinery

➤ increased
➤ quality out
➤ eliminating
➤ cutting costs
➤ bigger profits
➤ 100% efficiency



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**EQUIPMENT *for* MANUFACTURING
CLAY PRODUCTS—POTTERY
and GENERAL WARE**

rawer, we charge
with \$200 and
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Co. by check

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e "GENERAL LEDGER"
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with \$1,200 and crediting
12 received for Interest.

required here two lines to cover
e bracket these to show that they are
r.

10. Sold coal for cash, amounting to \$24.80.
arge "CASH" and credit "EXPENSES" (f).

February 12. Bought from the Brixton Hay & Grain Co.
Live Stock Supplies amounting to \$183.60.

Credit them under "ACCOUNTS PAYABLE" and charge
"EXPENSES" (1).

February 13. Discounted at the bank the note received
from the John-Thomas Construction Co., the discount being
\$11.31.

Credit Notes Receivable in the "GENERAL LEDGER"
column with the face of the note, charge the "BANK" with
the proceeds and charge "EXPENSES" (i) with \$11.31. Do
not confuse bank discount with a trade discount which arises
from anticipating payment of invoices. This is a set-off
against the item of \$12 credited above to Interest. In some
cases such a note is credited to Notes Receivable Discounted,
with an entry when the note is finally paid. This is a good
practice and should be more generally used.

February 14. The company having some unissued *Capital
Stock*, a sale was made of this stock to the amount of \$1,600
at par, the amount being deposited in the Bank.

Credited Capital Stock Unissued in the "GENERAL
LEDGER" column and charge the "BANK."

February 15. Bought from the John-Thomas Construction
Co. Supplies amounting to \$201.50.

Handle the same as the case of the Brixton Hay & Grain
transaction on February 12.

February 15. Paid the Pay Roll for the last half of January
by check number 1188 amounting to \$3,474.11.

As this was included in the "ACCOUNTS PAYABLE" out-
standing January 31, we charge this account and credit the
"BANK."

February 15. The Pay Roll for the first half of the month
having been made up, it is found to amount to \$3,175.15 but
there are deductions of \$16.18 covering Supplies which have
been sold to employees and \$84 for Rent of company houses.

Charge "EXPENSES" (b) with \$3,175.15 credit the same
account with (g) \$16.18 and (y) \$84, crediting the remainder
\$3,074.97 under "ACCOUNTS PAYABLE," bracketing the
entries to show that they constitute a single unit.

February 16. Gave Brixton Office Supply Co. check 1189
for \$7.16 in payment for office supplies.

There being no previous credit for this amount to the
Brixton Office Supply Co., charge the item to "EXPENSES"
(n) and credit "BANK."

February 1923, page 1

1923		General Ledger	Sales	Accounts Receivable
Feb 1	John Thomas Construction Co.,		160	17690
2	City Building Co.,			17690
3	Highway Coal Co.,			25175
5	John Doe Building Co.,		1	70000
6	Better Supply Co.,			
7	Brixton Telephone Co.,			
8	Cash Deposit			
9	John Thomas Construction Co.,			120000
10	Notes Receivable	121200		
10	Cash Sale - Coal			
12	Brixton Hay & Grain Co.,			
13	Notes Receivable	121200		
14	Capital Stock Unissued	160000		
15	John Thomas Construction Co.,			
"	Pay Roll			
"	"			
"	"			
16	Brixton Office Supply Co.,			
17	Clayton Mining Co.,			
26	"			
28	John Thomas Construction Co.,			17690

Figure 3. Left Hand Page of Cash Journal and Operating Register. The Full Sheet Is 11 by 14 Inches. The Entries Are Explained in the Text.

February 17. Bought a car of raw material from the Clayton Mining Co. for \$325.08.

Handle as in the case of the Brixton Hay & Grain Co. on February 12.

February 26. Paid the Clayton Mining Co. for their account less two per cent., by check 1190 for \$318.58.

Charge Clayton Mining Co. under "ACCOUNTS PAYABLE" with \$325.08 credit "EXPENSES" (d) with \$6.50 and credit "BANK" with \$318.58.

February 28. There is owing from the John-Thomas Construction Co. under "ACCOUNTS RECEIVABLE," \$176.90; and there is coming to them under "ACCOUNTS PAYABLE," \$201.50. Instead of interchanging checks, we transfer \$176.90 from the first account to the second, as shown.

Handling Bank Deposits

This variety of illustrations will show how the Operating Register is to be used. All deposits in the Bank are entered in one column, whether the deposit arises from the sale of capital assets, the discounting of a note receivable or note payable, a payment received from a customer, a check for sale to an unidentified cash purchaser, a transfer of funds from the cash drawer, or from any other source whatever.

In like manner, the bank is credited with checks drawn for any purpose, such as the payment of a note with accrued interest, of an invoice less a cash discount, for an expense not covered by a previous charge, or to cover any combination of transactions involving any number of different groups of accounts.

As has already been shown the "EXPENSE" columns cover every charge or credit to this account, no matter how the item may originate, or if it is the result of several interwoven transactions.

Compare This with Your System

As a means of estimating the merits, so far, of the system as outlined, let the reader consider how he would handle

each of these entries by the methods he now employs, finding to what extent the items which here appear in orderly array in a single pair of columns, are by any other system scattered among two or more different books; or what entries which here are covered with a single debit and credit it was necessary to cover by two distinct entries in different books.

Additional advantages will appear as we proceed with the discussion.

The next section will deal with closing entries of this Operating Register, but before taking up this subject we should note the following points:

Errors Are Easily Caught

The book balances on every line, except where two or more lines are bracketed. At the foot of the page all columns are totaled and the total of the debits is compared with the total of the credits up to that point. If these do not agree and there is any difficulty in finding where the error lies, take sub-totals at two or more places and find within what limits the error lies. For instance, if the totals at the middle of the page agree, then the error is below that set of totals. In this way any error may be traced down to narrow limits and inevitably caught.

It will be seen that there are spaces in the box headings in which to insert the amounts carried forward. This eliminates the embarrassment which results when one finds that the top line, intended for this purpose, has already been used thru some oversight.

When one has balanced a page and has carried forward the totals to the top of the next page, the next step is to prove the headings before adding in the figures below. Often mistakes are made in carrying forward totals from one page to another, and it is usually the last place one looks for such an error. So it is best to make sure one has a proper start before proceeding with the summation of a page.

(Chapters 3 and 4 will appear in next issue)

February 1923, page 1.

Bank		Cash		Accounts Payable		Expenses			
251.75									
			196.00			261.15	261.15	f	
						4.00	4.00	d	
						15.75	15.75	g	
						9.14	9.14	t	
1187	914								
150.00				150.00					
			248.00						12.00
									248.00
						183.60	183.60	c	
							11.31	c	
1200.69						201.50	201.50	g	
1600.00						3074.97	3175.15	6	
	8	3474.11		3474.11				9	
								9	16.18
								4	84.00
	9	716					716	n	
						325.08	325.08	c	
1190	318.58			325.08				d	6.50
				176.90					

Figure 4. Right Hand Page of Cash Journal and Operating Register. The Full Sheet Is 11 by 14 Inches. The Entries Are Explained in the Text.

What the C. B. M. A. Gives the Producer

Annual Convention of Common Brick Manufacturers' Association to Show How Every Brick Manufacturer Profits by Results of Its Efforts—Good Speakers on Program

THE Common Brick Manufacturers' Association meeting, which will be held in Cleveland, Ohio, February 5, 6 and 7, is expected to set a new standard in brick conventions.

By virtue of the national headquarters of the Common Brick Manufacturers' Association being in Cleveland, it is possible to make a demonstration of the activities of the association that would not be possible in any other city. The offices of the organization, located in the Cleveland Discount Building, will be thrown open and utilized for some of the convention activities.

The business meetings will be held at the Hotel Winton, and the entire facilities of this large new hotel are at the disposal of the brick men during this week. From the time the visiting brick man and his family arrive in the city of Cleveland they will sense a spirit of welcome that the local committee in Cleveland say will be unusual. Altho business is to be put ahead of every other consideration, the amusement, especially for the ladies, is not to be neglected. Cleveland, being the home city of this active young association, the officers are taking a special pride in making the Fifth Annual Convention a model for future years.

Show Results of Work

Results of the work that has been done since the formation of the association will be demonstrated in a way, it is believed, that will leave in the minds of the brick manufacturers present no room to doubt the value of this kind of work. Particularly will the meeting show that these results are available to every brick manufacturer in the United States who wishes to take advantage of them. In the most practical and graphic manner it will be shown that certain brick manufacturers have profited exceedingly thru their membership in the association by using freely its facilities. One of the main objects of this meeting is to show to every brick man how he can turn into profit the services rendered by the association and prove, if possible, that the brick manufacturer who is not highly successful today is missing his opportunity thru failure to properly cooperate with his brothers in business.

Sessions Begin 10 A. M., Monday, February 5

Due to the fact that the National Brick Manufacturers' Association has decided to meet also in Cleveland during the

last half of the same week, the Common Brick Manufacturers will complete their sessions on Wednesday afternoon, February 7. In order to give full time to all of the subjects up for consideration it will be necessary to open the convention promptly at 10 o'clock on Monday, February 5. Accordingly it is urged that every brick manufacturer and others attending this meeting arrive in Cleveland on Sunday, February 4, if possible, so as to be well settled and ready for the business of the week early Monday morning.

There will be two short sessions each of the three days of the convention, starting at 10 A. M. and 2 P. M. A program will be made up to fill in the hours not occupied by meetings in visiting the office of the association, local brick plants, and other features worth seeing in and about Cleveland.

Among the speakers who will lead the discussions are Charles Coolidge Parlin, Manager Commercial Research Department of the Curtis Publishing Co., publisher of the Saturday Evening Post, the Ladies' Home Journal, and the Country Gentleman. Mr. Parlin unquestionably is one of the most forceful speakers upon the subject of advertising in America. If there lives in America a brick man who does not believe in the value of advertising he owes it to himself to come to Cleveland and hear Mr. Parlin speak.

Leonard P. Ayres Will Speak

Col. Leonard P. Ayres, of the Cleveland Trust Co., whose writings upon the building outlook have been published in many national magazines, will picture for the brick men the future in their industry.

Advertising will be discussed from the manufacturer's side by Mr. Edward S. Jordan, president of the Jordan Motor Car Co. Mr. Jordan began in a small way several years ago to manufacture cars. He gives great credit to advertising for having placed his plant among the most successful in America.

Those who heard E. Elmo Martin at the St. Louis meeting last year with his blackboard talk will be glad to know that another speaker of the same type has been secured for the Cleveland meeting. Robert C. Griswold, who taught salesmanship in the principal cities of this country and Europe, and one of the leading exponents of the famous Sheldon School of Chicago, will give one of those snappy, straight-



The Hotel Winton, Cleveland, Ohio, and Its Convention Hall where the Common Brick Manufacturers Association Will Meet February 5, 6 and 7.



from-the-shoulder discussions that will keep the audience on the edge of their chairs.

To Discuss Brick Men's Problems

Aside from these men mentioned there will be few outside speakers. Nearly all the sessions will be devoted to discussions by the brick men themselves of problems that are closest to their hearts and their pocketbooks.

The consulting architect of the association, D. Knickerbacker Boyd, of Philadelphia, will give the brick men a shot that they will not soon forget on the subject of brick substitutes. It will be well worth while to listen to this awakening address, which will also tell what should be done to head off the attack of this formidable enemy.

The matter of cost accounting, of bricklayer apprenticeships, of local organizations and local advertising, each will be given sufficient time for thoro discussion.

Among the social features that will entertain all of the delegates and their families will be a night at Keith's Palace Theatre. A large section of the lower floor has been reserved for the brick men on Tuesday night, February 6. There will be grand opera, with Mary Garden and other great stars on in Cleveland during the convention, and reservations of tickets will be made to accommodate the delegates who wish to attend.

Novel Entertainments Being Planned

David Olmsted, the manager of the Hotel Winton, is providing a series of novel and intriguing entertainments for his guests during convention week. These will include a dinner-dance on Wednesday evening, which will be open for all of the delegates to both the Common Brick Manufacturers' Association and the National Brick Manufacturers' Association meetings. For the ladies there will be some special teas, card parties and matinees. Automobiles will be available for all who care to use them in sightseeing.

Special rates upon the railroads have been secured for this meeting and assurance is given that if those coming to Cleveland will have forethought enough to take a certificate when they buy their ticket they may be sure of a half rate return fare. There need be no disappointment, as in years past, if the brick men themselves will think to take the certificate.

Reservations should be made at once, and Secretary-Manager Stoddard agrees to have exactly the kind of room ordered awaiting each delegate upon his arrival at the Hotel Winton if the reservations are made early.

Invite All Brick Manufacturers

Just as the American Face Brick Association had the greatest meeting of its career recently, and showed results from its splendid advertising campaign that startled its members, so may the Common Brick Manufacturers' Association be depended upon to exceed in interest and value any convention that it has previously held, and also to show results which will delight those enterprising and forward-looking manufacturers who have so loyally sustained this movement from its inception.

Every brick manufacturer, whether a member of the association or not, is cordially invited to attend. The machinery and equipment manufacturers also will be in attendance, and an entire floor has been placed at their disposal for display purposes.

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CORRECTING A STATEMENT

An article in the November 28 issue of Brick and Clay Record described the clays and opportunities for development in Saskatchewan. The article stated that there was now no representation of the clay industry in the province. This statement has been called to our attention as being incorrect, by Professor W. G. Worcester, of the University of Sas-

katchewan. Mr. Worcester states that there are plants at Estevan, Claybank, Bruno, Prince Albert, Saskatoon, Arcola, Broadview and other places. "Thus," says Professor Worcester, "one entering the field of clay manufacturing in Saskatchewan would find much of the real pioneer work accomplished."

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WISCONSIN CLAY MEN'S MEETING

The Wisconsin Clay Manufacturers' Association, one of the veteran associations of the industry, will hold its Twenty-second Annual Convention in Milwaukee at the Republican House on January 24 and 25, 1923. Enthusiasm for the continuation of the association ran high at the last year's meeting and, in view of this fact, this year's meeting promises to be a very large one. All manufacturers of clay products in Wisconsin are urged to come to this gathering, to become better acquainted with their fellow manufacturers and acquire more fully the spirit of helpful cooperation that should prevail in the industry.

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ROAD BUILDERS TO MEET JANUARY 15-19

A movement likely to result in the enactment of uniform highway traffic regulations thruout the country is expected to develop at the Thirteenth American Good Roads Congress and Fourteenth Good Roads Exposition, to be held January 15 to 19, in Chicago, under the auspices of the American Road Builders' Association. Eighty-five thousand invitations to the Good Roads Congress have been sent to men interested in highway development thruout the country. During the Congress many national associations allied with the Good Roads Congress will hold their annual conventions. Reduced rates for the round trip to Chicago have been secured.

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STUDY AIR STEAM MIXTURES

The University of Illinois has recently published some very interesting bulletins on "A Study of Coal Mine Haulage in Illinois," "The Study of Explosions of Gaseous Mixtures," and "A Study of Air-Steam Mixtures." Among these the latter especially, is worthy of notice.

The investigation of air-steam mixtures is the outgrowth of an investigation of the reheating of compressed air by C. R. Richards, former Director of the Engineering Experiment Station and Dean of the College of Engineering, and J. N. Vedder, Research Assistant in Mechanical Engineering. The bulletin above mentioned treats the subject of air-steam mixtures with considerable detail both by means of a theoretical discussion and by reporting actual tests made with different proportions of air and steam at different initial air temperatures and under various load conditions. Leroy A. Wilson and Charles C. Richards are the authors.

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STUDY SETTLING RATE OF CLAY

The rate of settling of clay is considered by the Bureau of Standards to be an important matter in connection with the use of clays as a filler in papermaking. The rate of settling of clay in a medium is to a certain extent dependent on the hydrogen-ion concentration of the suspending medium. The rate of settling of six clays has been studied over a wide range of hydrogen-ion concentrations. For each clay water mixture there is a definite hydrogen-ion concentration at which the rate of settling will be a maximum, and also a definite concentration at which this rate is a minimum. In the purification of clay these two points should be known in order to effect the separation of clay particles from quartz and mica particles most efficiently.

N. J. Men Discuss Plant Problems

Give Symposiums on Casting of Ceramic Wares and Oil Burning—Compare Efficiency of Coal, Oil and Gas

Leroy W. Allison

THE ANNUAL MEETING of the New Jersey Clay Workers' Association and Eastern Section of the American Ceramic Society was held in the assembly room at the new Ceramics Building, Rutgers College, New Brunswick, on December 12, with morning and afternoon session. This was the first gathering to be held at the new institutional building, which was dedicated last June, and more than 100 members and guests were present to do honor to the occasion.

President R. H. Minton gave an interesting address, departing from the customary theme of presidential talks in dealing in an intimate and authoritative manner with the ceramic history of the country and the part which New Jersey has taken in this development.

First New Jersey Pottery Established 1685

Mr. Minton said that the first pottery for the manufacture of general ware in the state seems to have been established near Burlington in 1685, and that the clay used was secured from the vicinity of South Amboy, in the Raritan River section. In 1816 a stoneware pottery was located at Elizabeth, specializing in the manufacture of yellow and Rockingham wares. Other plants were founded in subsequent years in this same northern section of the state.

The real pottery industry of the state, however, started, he stated, in Trenton in 1852, when James Taylor and Henry Speeler commenced the manufacture of yellow and Rockingham wares. Probably the first plant to produce cream colored material and porcelain in Trenton was that of William Young & Sons, established in 1853, altho records indicate that a porcelain plant was operating in Philadelphia, nearby, as early as 1770.

Following, specific reference was made to different branches of the ceramic industry. It was pointed out in connection with sanitary ware, that the first successful manufacturer in this country was Thomas Maddock, who commenced to operate a pottery at Trenton in 1873.

Pioneers in the Clay Industry

The first manufacturer of ornamental tile was the Harris Mfg. Co., organized in 1882; the name of this company was changed shortly afterwards to the Trent Tile Co., and is still operating under this title. The first recognized fire brick plant was the Salamander Works, established at Woodbridge in 1825, and which has long ceased to exist. The initial hollowware was made by Henry Maurer & Sons on the site of their present works at Maurer, Perth Amboy. The terra cotta industry in the state was started by A. Hall & Son, at Perth Amboy, in 1846, and in later years, 1879, to be exact, this company was reorganized as the Perth Amboy Terra Cotta Co.

To impress upon his audience the importance of New Jersey as a clay-producing and clay-products manufacturing state, Mr. Minton showed some interesting charts on the screen, compiled from government statistics from 1900 to 1920.

Casting of Ceramic Bodies

The technical feature of the morning session was devoted entirely to a symposium on the casting of ceramic bodies. Some valuable and interesting data were brought out.

Andrew Foltz, president of the Lambertville (N. J.) Pottery Co., opened the symposium with a description of the method used at his plant for getting the casting slips to the work shop. This is accomplished by the use of an iron tank below the floor level, in which the slip is dissolved. There is no agitator, and an air pump is employed for forcing the slip from the tank thru the fly pipe, distributing for a distance of about 300 feet. The tank also has an arrangement for blowing the slip back into the plunger, if desired. This equipment is in use for 45 minutes to one hour a day, for ordinary requirements for the plant. The air pump operates automatically, shutting off when the air pressure rises, and starting when it drops.

Maddock Explains Casting System

The next speaker, C. S. Maddock of the Thomas Maddock's Sons Co., Trenton, said that the Wainford-Darling equipment was utilized at this plant for the delivery of the slip; a pressure valve has been placed on the outfit and a return system installed, both of which have proved advantageous. The pipe runs thru the shop, and there is a common return to the agitator. The slip is delivered to every man by means of a hose.

Erie Turner, Trenton (N. J.) Flint & Spar Co., followed Mr. Maddock with an interesting paper, "The Casting of Grog Bodies." In this it was stated that a cast sagger will carry the load better than a hand-made or machine-made sagger. The cast sagger may cost a trifle more, but if four or five of these are used at the bottom of each bung, the reduction in loss thru broken ware and saggars occasioned by the collapsing of the bungs will compensate, many times, for the extra cost.

It was set forth that grog slips cannot be handled in pipes on account of the excessive friction, and should be carried to the molds in suitable vessels and there poured, along the lines of general foundry practice. As to the time required to make a cast, it was stated that as a general rule, shapes up to 1½ inches thick can be cast in the same mold about every six hours, while pieces from four to five inches in thickness require from 16 to 24 hours in the mold.

How Lenox Ware Is Cast

The next speaker in the discussion, Leslie Brown of Lenox, Inc., Trenton, explained that practically everything is cast at this plant, from hollowware to jiggered ware. The method used provides for the grinding of the casting slip for the hollowware in a ball mill; the clay is dried and weighed, and is ground to a certain number of revolutions, assuring uniformity of grade; following, air pressure is placed on the cylinder and the slip forced thru the lawn into the storage agitators, from whence it is pumped into the shop for casting service.

The important thing, he said, was to control the water content of the clay, and also to control the electrolytes that are added to it to insure uniform working conditions for the production of fine ware. It was also mentioned that the pebbles used in ball mills should be weighed from time to time and the loss thru wearing down replaced.

T. A. Klincfelter, Trenton (N. J.) Fire Clay & Porcelain



New Jersey Clay Manufacturers and Ceramic Men in Convention at Rutgers College, New Brunswick, N. J., December 12, 1922.

Co., gave a brief resume of some of his experiences in casting electrical porcelain specialties. He said that in developing a process, it was found very quickly that the ordinary high-tension body for jiggering was not a good body for casting, rather, a very poor one. It can be used, but the results are very uncertain and naturally costly.

It was also found that the pieces to be cast were of exceedingly difficult design, such as bushings with heavy corrugations, and the like. It was impossible, as well, to use sanitary bodies, these being too porous and not capable of standing the test. The trouble with balling was also brought out, and the statement made that this occurs with pieces over one inch thick.

Calcine Part of Green Body

President Minton called upon T. G. McDougal, Champion Spark Plug Co., to say a few words on the subject. Mr. McDougal said that he did not believe that a porcelain body could be cast successfully over $\frac{3}{4}$ inches thick unless an idea was employed from the successful casting of refractory bodies, this covering the calcining of a proportion of the porcelain body, ground, and then introduced into the slip. The calcining of the body might appear difficult in the way of factory practice, it was set forth, but it is being done in the spark plug industry, 45 to 50 per cent. of the body being calcined and reduced to pass thru a 120-mesh screen.

Others who expressed an opinion were O. O. Bowman, 2nd., Frank Dinsmore, C. W. Hill, and president Minton. Mr. Dinsmore, Imperial Porcelain Co., Trenton, maker of electrical porcelain, said that his company used an open mold and which, to his mind, was the only way to get around the variations in thickness. At this plant, ware is being cast 2 and $2\frac{1}{2}$ inches thick, with practically no losses thru cracking; pieces are being produced by this method $7\frac{1}{2}$ to 8 inches in diameter and 25 to 26 inches long successfully. The water content is compressed to a quart or two in the mixing of 2,000 pounds of batch.

Present Orton's Picture

With the close of the morning technical session, President Minton called upon Ross C. Purdy, general secretary of the American Ceramic Society, to speak to those assembled. The remarks were in the nature of a presentation address of a

beautiful picture of Professor Edward Orton, Jr., dean of the ceramic industry, secured by subscriptions from the former students of Dr. Orton at the Ohio State University.

Following, Charles A. Bloomfield, Metuchen, made an impressive address with reference to Dr. Orton and his privilege to be closely associated with the early work of this founder of the institutions for ceramic learning.

Present students of the ceramic department at Rutgers were present at the occasion of the presentation of the picture, and one of their group made an appropriate speech of acceptance. Mr. Bloomfield and Abel Hansen were presented with framed photographic reproductions by Mr. Purdy on behalf of the former students of Dr. Orton, in commemoration of their work in establishing the institution of ceramic education at Rutgers College.

Andrew Foltz, New President

Just prior to the adjournment for luncheon, officers of the association were elected for the ensuing year, the vote being unanimous. Andrew Foltz, Lambertville Pottery Co., was elected president, and Charles W. Crane, the Crossman Co., vice-president. Professor George H. Brown, director of the department of ceramics at Rutgers, was re-elected secretary and treasurer, and Margaret G. Hartmann, department of ceramics at the institution, was appointed assistant secretary.

The group picture taken on the steps of the Ceramics Building, here reproduced, formed the final feature of the morning session.

Following an enjoyable luncheon, served in the basement of the Ceramics Building, the meeting was again called to order with President-elect Foltz presiding. He abandoned the idea of any presidential talk owing to the lateness of the hour, and opened the technical session, devoted to a symposium on oil firing. Francis W. Walker, Jr., Beaver Falls Art Tile Co., was the first speaker on the program.

Comparing Coal, Oil and Gas

Mr. Walker gave an interesting and pertinent address on what is being done at his company's plant, and illustrated his remarks with lantern slides showing cost tabulations and comparisons. He said that all fuels can be burned equally efficient from a thermal standpoint, dependent, of course,

(Continued on page 65)

eliminates the necessity of anyone staying overtime to tell the crew what to do. It also removes the misunderstandings that are so prevalent when an ordinary sheet of paper is used for the switching list.

The chief advantages of this system, however, lie in the fact that the crew knows exactly what their duties are before they enter the plant. They know also that they cannot pass the buck or claim misunderstanding if they do not fulfill those duties. This system also expedites their work and this creates a psychological effect which creates a more friendly feeling of the crew for the plant. As a result they are more willing to put up with small inconveniences occasioned by their work. The plant is the gainer all around.

This system could be used with equal success if the switching were done in the day time.

* * *

BONUS TO BURNER REDUCED FUEL CONSUMPTION

The research crew which visited a dozen or more clay products plants during the special kiln investigation conducted thru the support of the American Face Brick, Common Brick Manufacturers, Hollow Tile, and National Paving Brick Manufacturers Associations, among other things found that fuel consumption could be reduced considerably in kilns after attempts were made to study the burning methods and a different burning schedule determined. Plants where the management itself made an earnest effort to study their kiln conditions found that they could effect economy in their burning.

An interesting case in point is that of the Standard Shale Brick Corp., of Crawfordsville, Ind., where six or seven years ago, the fuel consumption on kilns averaged thruout the year approximately 2,000 pounds per 1,000 face brick. Furnace gas producers were installed on one of the kilns and by means of this equipment the fuel consumption was cut to approximately 1,200 pounds per 1,000 brick. Not only was the fuel consumption lower, but the burning time was reduced considerably.

The fact that such a remarkable reduction in time and fuel consumption was possible, led the manager to believe that there was a good opportunity of faster burning in the ordinary kilns. He suggested to the head burner that other kilns be fired on a faster schedule.

The burner who had burned brick for 20 years said that it was not possible to fire on a faster schedule. In order to secure the cooperation and honest efforts of the burner in reducing the fuel consumption the manager offered him a bonus of \$5 on every 100 pounds of fuel that was cut off per 1,000 brick burned. For every 100 pounds reduced under 1,200 pounds per 1,000 brick, a bonus of \$10 was offered.

Altho the burner still scouted the possibility of reducing the fuel consumption, the manager put it up to him that he had nothing to lose and everything to gain. The result was that in a period of a few years the fuel consumption per 1,000 brick was in some cases actually cut in half, but on the average it is now down to 1,200 pounds per 1,000 brick.

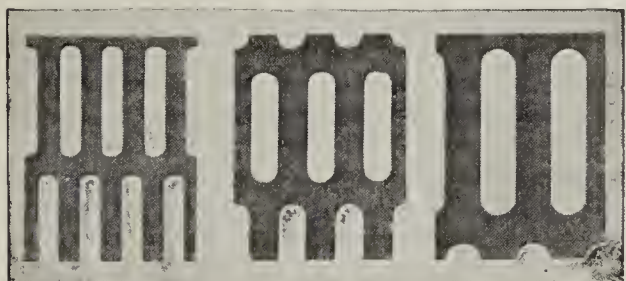
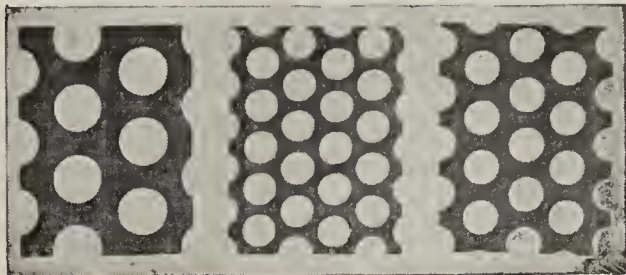
Equal results are obtained on kilns not equipped with the furnace gas producer as the one which was equipped with this apparatus. The equipment, however, was the means of bringing about the great cost reduction.

* * *

USING WASTE HEAT FROM SCOVE KILNS

Several ideas have been presented from time to time on using the heat remaining in a scove kiln after a burn has been completed. Yet there are few concerns using up-draft kilns that employ the waste heat for any purpose. This is largely ascribed to the fact that their dryers are not equipped to use waste heat.

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All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

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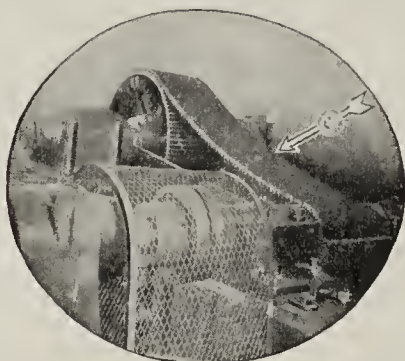
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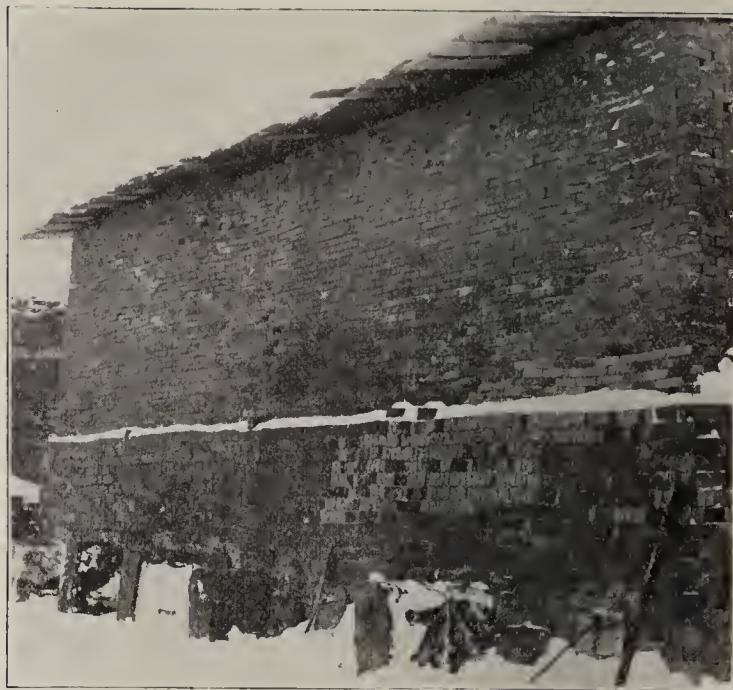
SAN FRANCISCO

ST LOUIS, MO

TORONTO

WINNIPEG, MAN

At the factory of Merkley Bros., Ltd., Ottawa, Canada, common brick are made by the soft mud process and dried in a waste heat dryer. They are then set in the clamp kiln and burned. When the firing has been completed the kiln



The Hot Gases Are Drawn from This Scove Kiln by Means of Metal Ducts. The Waste Heat Is Used for Drying.

is covered with sheets of tin, except for a small space on top on the side opposite from which the heat is drawn. At every other arch, or at every arch, depending upon conditions, are set iron ducts to connect the arch with the underground duct which runs along side the kilns. This waste heat duct is four by four feet in dimensions and conveys the gases to a fan and thence into the dryer. The remaining arches and those on the other side of the kiln are sealed tight.

The fan is then turned on and cold air is drawn thru the brick on top and diagonally across the kiln to the arches and then passes thru the iron ducts into the waste heat flue and finally into the dryer. In its travel thru the kiln setting the air becomes heated because of coming in contact with the hot brick, and is used the same as the waste heat obtained from down-draft kilns. Besides using the waste heat from the scove or clamp kiln and effecting an economy in drying, the brick are cooled quicker than otherwise and the kiln can be opened sooner, resulting in a quicker kiln turnover.

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USES MANILA ROPE ON MAIN DRIVE

The economy of a manila rope drive for the main drive of a plant is thoroly believed in by H. R. Straight of the Adel (Ia.) Clay Products Co. Mr. Straight uses this type of drive and states that in addition to the more positive drive, as a result of elimination of friction, he is in favor of it because of the fact that a renewal or replacement costs only \$100. The rope lasts for four years. Of course, special sheave wheels must be provided in place of the regular pulleys that are used by a belt drive.

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KENTUCKY MEN WILL NOT MEET TILL MARCH.

The Kentucky Clay Products Association will probably not hold a meeting until about March, or until after the National conventions are held, it being the general opinion that it would be better to wait until after those meetings are over, and then apply what has taken place, for discussion at the state meeting, thus developing new ideas, instead of always being a year behind the latest plans.

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This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

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Drawn from the Kilns

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clay Manufacturing

DEATH TAKES GEORGE H. HARTWELL

Brick and Clay Record is moved with deep sorrow and profound regret in announcing the death of George H. Hartwell, 57 years old, a well-known figure and good friend of the clay industry. He died suddenly on December 9 as the result of a stroke. About a year ago he suffered a stroke and was forced to go to a hospital for four months. He had



GEORGE H. HARTWELL

recovered much of his health and was believed to be well on the road to recovery when he suffered his second stroke.

Mr. Hartwell was publisher of the Clay Record from its beginning in 1891 until 1911, when that paper was consolidated with Brick and became Brick and Clay Record. During his many years of association with the clay industry he made many friends and became a familiar and popular figure at conventions. Even in recent years he liked to attend the meetings of the clay manufacturers and renew his old acquaintances.

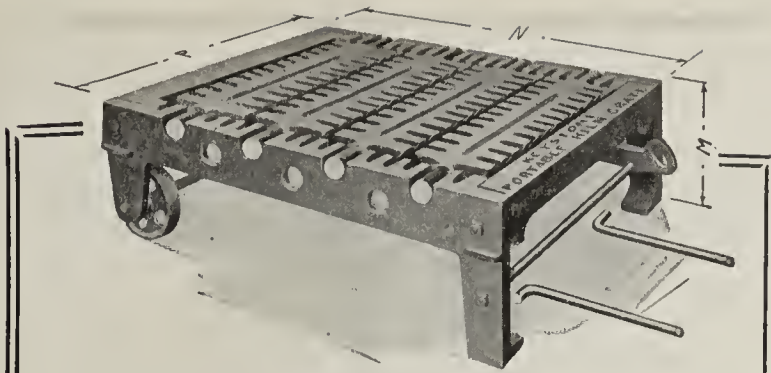
Since Mr. Hartwell gave up publishing the Clay Record he has been living in Ellis Junction, near Crivitz, Wis., where he has been conducting a summer camp for vacationers. His widow to whom the sincere sympathy of Mr. Hartwell's friends is extended, will continue the resort at Crivitz.

MISSOURI BRICK MAN DIES

William J. Mayes, president of the Knobnoster (Mo.) Brick Co., died at his home in Warrensburg, Mo., recently, at the age of 75 years. Mr. Mayes had carved for himself an enviable niche in the history of his community and his death will be mourned by many.

TAKES OVER ARKANSAS PLANT

The Southern Brick Co., of Jonesboro, Ark., has taken over the Southern Brick & Lumber Co., of Jonesboro, according to A. B. Christopher, manager of the plant. This latter com-



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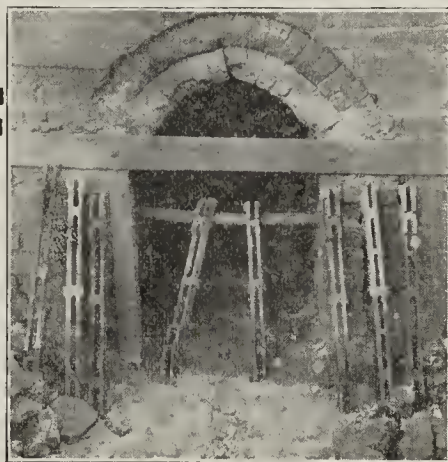
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TORONTO PANS



244-245

are used to-day in the most successful plants in the country. They solve grinding troubles, save labor, require less maintenance, and upkeep, and improve quality of product.

Write for particulars.

THE TORONTO FOUNDRY & MACHINE CO.
TORONTO, OHIO



10 FOOT
TORONTO
DRY PAN

pany was formerly the Arkansas Brick & Lumber Co., which was sold in the bankruptcy court about two years ago.

BUILDING NEW PLANT AT SUPERIOR, ARIZ.

Arrangements are now being made by Manager Jack Davey for the installation of a new unit at Superior, Ariz., it is said. Two full carloads of modern machinery, which include the very latest brick cutting machine, will be established at the new unit. This new installation will increase the capacity of the present plant considerably.

VALLEJO COMPANY ENLARGING

The Vallejo (Cal.) Brick Co. has been authorized to dispose of \$100,000 worth of stock for the purpose of enlarging its plant. The company now employs 40 men, and this new capital will mean considerable enlargement.

DICKEY ADVERTISING MASTERTILE

The Dickey Mastertile Co., San Francisco, Cal., is doing an effective job of local advertising, showing photographs of homes and garages built of mastertile. Among others is the photo of a garage of mastertile supporting roof trusses 75 feet long, giving clear floor space. The company is putting forth the claim that it is as cheap as wood.

MASTERTILE HOME IS DRAWING CARD

The Walter H. Lemert Co., the most extensive home building concern in Oakland, in advertising the beautiful Lakeshore Highlands Tract, is making as a leading feature of the "ad," the attraction of a new home combining "beauty, comfort and absolute safety." The home is described as being of Mastertile, faced with a dark-red tapestry brick, with a roof of asbestos shingles in blended colors. It was this company that recently furnished the homes for the Great Model Homes exhibit, whose visitors ran over 100,000.

FROST INSTALLING NEW EQUIPMENT

Work in bettering the plant and installing new and progressive ideas is constantly going forward at the Los Angeles (Cal.) Pressed Brick Co. plant. Howard Frost, president, in a recent letter to Brick and Clay Record said:

"At our Santa Monica plant we have substituted a Brookville locomotive for two horses and two men hauling the clay from the steam shovel to the concrete hopper at the base of the belt conveyor. This belt conveyor is 18 inches wide and a little over 600 feet in length, in two sections, and has been substituted for a drum and cable. It will enable us to deliver as much clay in one day as we did formerly in two. In other words, handling 450 tons a day, we will run three days instead of six, or one week instead of two weeks. Four men will be required, or equivalent to two men full time, as against six men formerly, so that the investment will pay a good return. Our steam shovel will be disposed of, if we can do so, as soon as the shale planer we have purchased arrives, and this equipment is promised for shipment by January 1. We should have it in operation on or before February 15."

SPIERS WILL BURN OIL

The recently incorporated Hall-Spiers Brick Co., of Berlin, Conn., plans to start operations at once and will burn its brick with oil for fuel instead of using wood. The company has a capital stock of \$75,000. The incorporators are Frederick M. Hall, Wilson A. Spiers and Paul H. Spiers.

COLUMBUS COMPANY ISSUING BONDS

The Columbus (Ga.) Brick & Tile Co., one of the largest plants in the state, announces the issuance of \$150,000 worth of first mortgage, seven per cent. bonds, the additional capital to be largely used for expansion purposes and enlargement of the plant. This company first commenced business

DESIGNED TO WORK



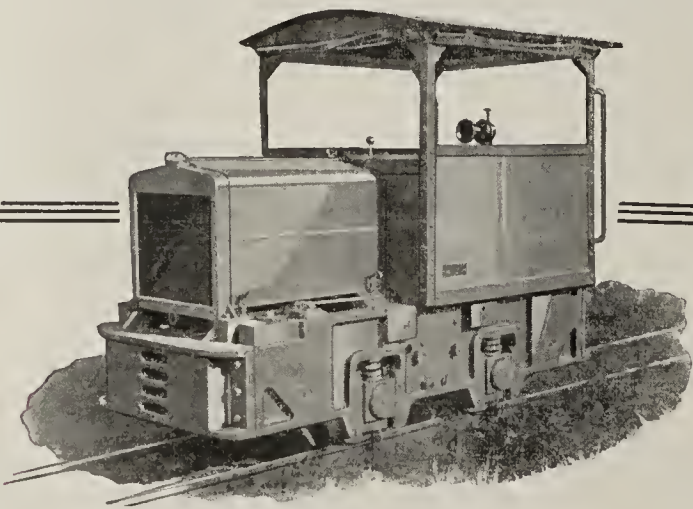
BUILT TO OVERWORK

WHEN IT COMES to HAULING

The new Whitcomb is the job for your pit. Equipped as it is with a Wisconsin overhead valve motor, removable radiator core, roomy cab, allowing clear vision in all directions, and other marked improvements, it naturally leads the field of gasoline locomotives. Let us show you where a Whitcomb will reduce your hauling costs.

Write for full description

GEO. D. WHITCOMB CO. Rochelle, Ill.



on January 1, 1920, purchasing the clay deposits, plant and other properties of the Shepherd Brothers Brick Co., of Columbus.

TO ENLARGE GEORGIA PLANT

J. E. and O. R. Jelks, of Hawkinsville, Ga., who recently purchased the plant and properties of the Ocmulgee Brick & Tile Co., at Hawkinsville, state they are planning to carry out immediately a program of expansion and will greatly enlarge the plant. This plant has been in operation for about 18 years producing a building brick that is extensively used by contractors over this district. Both J. E. and O. R. Jelks were long associated with their father in the brick concern of E. N. Jelks and sons, and well known in the industry in the Southeast.

IDAHO MAY HAVE CLAY PLANT

The construction of a brick and tile factory near St. Maries, Ida., is being contemplated by George Sidell of the Sidell Brothers, owners of the Modern Pottery Co. with mills near Chester, Wash., it is claimed.

ILLINOIS COMPANY CHANGES NAME

The Illinois Charcoal Chemical Co., Ullin, Ill., has recently been incorporated and has changed its name to the Egypt Brick & Tile Co., according to C. D. Train, secretary and treasurer. The capacity of the plant will be increased.

NEW IDEA IN GARAGES

Hollow tile is being used extensively in the construction of double-end private garages in Park Ridge, Ill. Two different owners will store their cars in this kind of a shelter,



Type of Hollow Tile Garage, Different Than Usual,
Being Built in Illinois.

entrance being made at each end. There is a hollow tile partition in the center, all the tilework extending clear to the ridge of the roof. The building is 40 feet long, with cement foundation and floor.

Two of the double-enders and one single of these tile structures are being built along with five two-story modern residences, all of tile superstructure.

FRAZIER DRAIN TILE CO. INCORPORATED

The Frazier Drain Tile Co. at Bluffton, Ind., has been incorporated under Indiana laws with a capital stock of \$75,000. The company will manufacture brick and clay prod-

PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details



"A great machine for mixing clay"—

*This is what Mr. Voelker, of Winona Brick Yards,
Winona, Minn., has to say about their*

ONE-MAN EXCAVATOR

He further states: "We have used the One-Man Excavator we purchased from you last spring, and find it to be the only machine to handle clay economically. It is a great machine for mixing the clay because you get a clean cut from the bottom to the top of the bank. If you have anybody that wants to know anything about the machine direct him to us."

You, too, can get the same results with this labor- and cost-saving equipment. Now is the time to order your machine for spring delivery.

Write for our new catalog today

The Bay City Dredge Works
BAY CITY, MICHIGAN

Meet us in Cleveland, February 5-10





Organized 1885 Incorporated 1908

FIRE INSURANCE

In addition to effecting substantial reductions in Fire Insurance Rates, Squire Company's service includes Fire Prevention Engineering work—Adjustment of Losses—In fact, complete elimination of all worry in connection with insurance details.

Quotations upon request.

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Insurance Specialists to Clay Manufacturers

SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.

Sunbury, Ohio



ucts and the incorporators are Luther M. Frazier, W. Hobart Frazier and Etta V. Frazier.

STANDARD CAN'T GET ENOUGH COAL

Difficulty in securing coal is threatening to affect seriously the operations of the two plants operated by the Standard Brick Co. at Evansville, Ind. The two plants have been four or five carloads short during the latter part of December. The plants use about a car of coal a day and a kiln is never started until there is sufficient coal on hand to finish it.

TO EXHIBIT BRICK HOME AT BUILDING SHOW

A brick house, a one-story structure of the bungalow type and containing between 300 and 400 kinds of building materials in its construction, will be built by an Indianapolis building supply company as one of the features of the home complete exposition to be held in April next year at the state fair grounds under the auspices of the Indianapolis Real Estate Board. The name of the company has not been made public. The house will constitute one of the largest single exhibits at the exposition and will be one of the most interesting displays because of the variety of materials used. From the advance interest shown the exposition will be one of the largest of its kind in the country.

MAY PROHIBIT STRIKES IN INDIANA

The clay industry is considerably interested in a bill to be presented to the coming session of the Indiana general assembly, which, in the belief of its framers, would prohibit strikes in all forms in Indiana. The bill is the first of its kind that ever has been presented to an Indiana legislature and even those back of it are prepared for a difficult journey in getting it enacted into law. The draft is said to have been shown to a number of members of the next legislature and is said to have been discussed with a number of prominent Hoosiers interested in such legislation. The exact identity of the forces behind the measure is being kept a close secret.

The proposed bill is entitled "An act to protect a person in his right to work for the support of himself or family, and providing penalties for violation thereof." It is to be known as a "Right to Work" bill, but its general effect, those behind the movement assert, will be to forestall the organization or calling of industrial walkouts.

NEW INDIANA BRICK RATES

The Public Service Commission of Indiana issued an order December 13, under Dockets Nos. 6801 and 6798, after considering the evidence presented by railroads and carriers of the State on November 2 and 3 at Indianapolis.

The order provides for certain key rates from Terre Haute, Attica, Crawfordsville and Brazil to 19 different destinations which are somewhat lower than the railroad attempted to put into effect October 16, and instructs the railroads to line up intermediate points therewith; also it provides a basis from Martinsville and Brooklyn, Ind.

The order also deals specifically with common brick, which are to take rates based on 80 per cent. of the rates published on brick and articles taking brick rates. These common brick rates are to be published without restrictions as to loading "at random" and so forth, which the Interstate Commerce Commission provided under their order in Docket No. 10733, and also permits the use of such common brick rates on brick made of surface clay or shale, but subject to the marked capacity of car as minimum. These new rates are to be made effective January 15, 1923.

GIVES EMPLOYEES NOVEL PRESENT

Harry Jiencke, head of the Independence (Kas.) Brick Co., brought joy to the hearts of about 75 per cent. of the employees at his plant when on the first of the year he pre-

sented them with a time deposit check of \$10 in addition to the regular bonus. In a little talk to his employes, Mr. Jiencke took occasion to point out the relatively slight difference between the capitalist and the laboring man.

MCDONALD LOOKS FOR GOOD BUSINESS

In an interview with the correspondent of Brick and Clay Record, A. P. McDonald of the P. Bannon Pipe Co., Louisville, Ky., reported a good year closed, with a great deal of business in hand, and prospects for one of the very best years the brick and tile trade has ever known, as a great deal of building work was carried over from 1922, while the outlook for 1923 is for an even larger year.

HAS ORDERS FOR 90 DAYS' WORK

James T. Howington, of the Coral Ridge Clay Products Co., Louisville, Ky., discussing business said:

"Prices are steady and show no change here. Demand is good. We have 90 days' business on our books at this time, which is more business than we've ever before had at the turn of the year. Our plant is operating at capacity on brick and building tile and shipments are large and steady, altho we're only getting about two-thirds the cars we need." Mr. Howington stated that in his opinion business would be very plentiful this spring and that it would tax the capacity of all brick and clay working plants to deliver enough material to keep the builders supplied.

HENRY MAURER BUYS 11 ACRES LAND

Henry Maurer & Son, Perth Amboy, N. J., manufacturers of fire brick and other refractories, have acquired two tracts of land in East Brunswick Township, totaling close to 11 acres, to be used in connection with their operations. The company has recently arranged for an increase in capital from \$40,000 to \$500,000.

FIRE BRICK COMPANY IN BROOKLYN

A recent report states that the Brooklyn (N. Y.) Fire Brick Works has been incorporated with a capital of \$100,000 to \$750,000.

LOANS \$47,000,000 FOR HOUSING

The loans made and authorized for housing by the Metropolitan Life Insurance Co., of New York, from the beginning of January to and including December 21, 1922, as summarized by Comptroller Stabler, amounted to \$47,014,810. This amount was loaned on a total of 7,604 dwellings, amounting to \$30,731,435, and on 542 apartment houses, amounting to \$16,283,375. The dwellings will provide residences for 8,985 families and the apartment houses will provide for 5,883 families, a total of 14,868 families. In New York City new dwellings numbered 995, to house 1,790 families, on which loans amounted to \$7,057,000, and 180 apartments, to house 2,554 families, the loans amounting to \$9,085,000. The out of town loans on 6,609 dwellings amounted to \$23,674,000, to house 7,195 families, and loans for 362 out of town apartments amounted to \$7,193,000, to house 3,329 families. The loans were made in practically every state in the Union.

Farm loans authorized or made during 1922 amounted to \$30,000,000. These were widely scattered in states, generally speaking, in the middle west and south, with a few on the Pacific Coast.

IRONCLAY CHANGING BRICK DISPLAY

The Ironclay Brick Co., of Columbus, Ohio, is making extensive changes in its brick exhibit at its central offices in the Ruggery Bldg. The entire display will be changed and a number of new panels placed in position, showing new products handled by the company.

CERTAINTY vs. GUESSWORK

When You Buy

SMOKELESS OIL BURNERS

You are dealing with a Company that maintains a force of

PRACTICAL BRICK MEN

and

SKILLED KILN BURNERS

Men who are thoroughly competent to install a complete oil burning system and burn your ware.

The Smokeless Oil Burner Co.
Bucyrus, Ohio

"Smokeless Oil Burning Systems are best"

MANGANESE

Best Quality Manganese

Carefully and

Uniformly Prepared

for

Brickmaking

*Write us for
samples and prices*

**NATIONAL PAINT AND
MANGANESE CO.**

LYNCHBURG, VA.

Miners and Grinders for More Than a Quarter of a Century

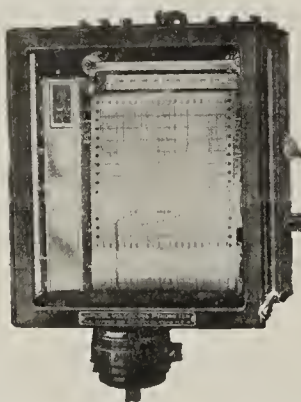
THIS WINTER

When winter sets in—and the thermometer begins to drop—when the snow falls and colder winds blow—how are you planning to hold even temperatures? Will they fluctuate with the weather, or will you have perfect control?

Bristol's Pyrometers afford a perfect control of all temperatures up to 3000° Fahrenheit. They accurately indicate and record, thus giving your burner immediate warning in case of sudden drop or rise in heat.

Ask for our latest catalog
AE 1401—the most complete pyrometer catalog ever published

The Bristol Company
WATERBURY CONNECTICUT



FUEL OIL IN 1923

Install SCHURS BURNERS in your kilns this year. The labor saving alone will pay the cost of same in one season. Oil will increase your kiln turn-over 25% and give you more uniform product.

"Be Sure
It's Schurs"



This Adjustable Tip instantly changes the atomizing point to suit a low or heavy fire. The perfect Water Smoking Burner.

Over 70,000 in Use.

SCHURS OIL BURNER CO.

ESTABLISHED 1905

5332 Santa Fe Avenue

LOS ANGELES, CALIF.

INSTALLING CAR TUNNEL KILN

The Ohio Clay Co., Cleveland, Ohio, has contracted for a Harrop continuous tunnel kiln for firing hollow building block. This kiln is now being constructed in the new plant.

GET SPECIAL SERVICE ON PAVING BRICK

Lacking 15 carloads of paving brick to complete street improvements under way, the city officials at Akron, Ohio, have secured the necessary material as the result of an appeal to the Interstate Commerce Commission. Railroad embargoes on different railroads have been responsible for the delay, and priority rights for the full allotment were granted by the commission.

OHIO LETTING 1923 ROAD CONTRACTS

The Ohio Highway Department has started its 1923 contract letting and three lettings were scheduled for the latter part of December. A number of brick roads were specified in these lettings, while plans are being prepared for more extensive contracts later on. It is planned to have all contracts awarded by early in the spring in order that the work can be carried on rapidly and completed during 1923.

EXPECT MUCH BRICK PAVING IN 1923

The Ohio Paving Brick Manufacturers' Association, of which J. R. Marker is secretary, is expecting a busy paving season both on roads and streets in the Buckeye State during 1923. Information shows that there is a large amount of money available for paving and the association will soon start a drive to get its share of the material used. Street paving especially is expected to tend more and more toward paving brick during the coming season.

PLAN ANOTHER CLEVELAND BUILDING SHOW

Cleveland building interests were so enthusiastic over the building exposition held last year that it was decided to repeat it again in 1923. The American Building Exposition, as it will be known, will be held in the Cleveland Municipal Auditorium, April 4 to 14, 1923. The exposition will be under the same management as the building show last year. Ralph P. Stoddard, secretary of the Common Brick Manufacturers' Association, will be managing director, and Robert D. Collier, manager. The same profit-sharing plan which brought exhibitors in the show last year a rebate of 33 1/3 per cent. of their space cost, will be followed.

McKAY TURNS OUT FIRST BRICK

First face brick to be turned out by the McKay Brick Co., Cleveland and Wickliffe, Ohio, made its appearance recently. While the material is expected to find its principal outlet in the district immediately adjacent to Cleveland, a wider distribution is seen in the addition of new agencies already.

According to John F. McKay, head of the firm, agencies already have been established by the Thomas Brothers, Detroit, for whom William B. Alcorn, of that firm, was at the McKay plant this week; and the Crume Brick Co., Dayton. Both will distribute the new brick in their territories, according to Mr. McKay.

The company is now looking for a name for its rough texture brick, which will be made a feature of its production.

DENISON WINS PATENT SUIT

One of the most important decisions affecting clay building material operations was handed down in the United States Court of Appeals for the Fifth District this week. The decision affects the making of certain forms of tile.

The suit was brought by the Denison Interlocking Tile Corporation of Cleveland, Ohio, against the Standard and Cherokee Brick Co., Macon, Ga. The suit was started on the Denison Interlocking Tile Corporation's patent No. 13299.

The action was brought against the Standard for making and selling universal tile made under the patents of R. S. Riqua, San Diego, Cal. The Denison Interlocking Tile Corporation had previously been awarded a decision in the district court of the United States for Georgia.

It was shown that the Standard is the licensee of the Riqua patents which cover only certain features, but that in using these it was necessary to employ some of the features of the Denison Interlocking Tile Corporation's product.

The court held that the Riqua material was patentable, but it was evident to the court that these patentable features could not be utilized without employing elements covered and protected by the Denison Interlocking Tile Corporation's patents.

In the opinion of officials of the Denison corporation this decision established the validity of the Denison corporation's patents and also practically fixes its scope so as to embrace all forms of tile combining uninterrupted mortar joints with vertical web and alignment.

TO SPEND \$20,000,000 ON ROADS

Approval of a \$20,000,000 highway program will be sought at the coming State Legislature by the Ohio Good Roads Federation, it was decided at the annual conference of that organization, held in Columbus.

The new program would include:

Transfer of unimproved sections of the main highway system to jurisdiction to the State Highway Department, and use of \$3,000,000 from the general state revenues for maintenance purposes. Upkeep of the unimproved sections of the main arteries now is in the hands of county and township officials.

Provision of a new fixed source of revenue by the General Assembly which would net at least \$5,000,000 annually to be used for reconstruction of roads.

Use of \$3,000,000 of the general revenue annually for state aid to counties and townships, each township to receive \$2,000 annually.

These new funds would be in addition to amounts accruing from state levy, for new construction amounting to something over \$5,000,000, and the \$4,000,000 from automobile licenses for maintenance of improved highways.

ERIE PLANT TO OPERATE ALL WINTER

P. S. Rossi, manager of the Glenwood Shale Brick Co., of Erie, Pa., has booked orders for 3,000,000 common brick for spring delivery. The plant will operate all winter to complete present orders.

CONTINENTAL ABSORBS SUPPLY COMPANY

The Continental Clay Co., with headquarters in Columbus, Ohio, which operates four brick and tile plants in various parts of the Canton district, has taken over the Southern Sand, Gravel & Supply Co., of Columbus and enlarged its retail yard in that manner. Warren B. Ferris is president of the company.

PUBLISH BOOK ABOUT BRADFORD PLANT

To provide its customers and others with an adequate idea of the facilities of its plant and the quality and variety of its products, Bradford (Pa.) Brick & Tile Co. has recently published a very excellent book. The book, which is plentifully illustrated, takes the reader thru all departments of the plant and shows him the modern and progressive way in which the Bradford company operates its plant. Reading such a book as this will at once instil in the mind of any one who knows no different the idea that the modern plant is as far removed from the old type hand operated plant as the modern locomotive is from the first engine devised by Stephenson. In addition there are also illustrated in color various types of



For handling thick fluids

The Jenkins Standard Brass Y or Blow-Off Valve has a full, free opening almost in line with the pipe, offering no obstruction to the passage of heavy liquids.

Used as a blow-off valve, the straight opening allows it to function freely.

Look for the Jenkins "Diamond" and Signature stamped on the body of the genuine—at supply houses everywhere.




*Figure 206,
Brass Y
Blow-Off
Valve, screwed,
with yoke.*

Jenkins Bros.

New York
Boston
Philadelphia
Chicago
Montreal
London





**HY-GRADE MANGANESE CO.
WOODSTOCK, VA.**

**Miner
and
Grinders**

**Especially Prepared
for Brick Making**



Fewer Men More Machines

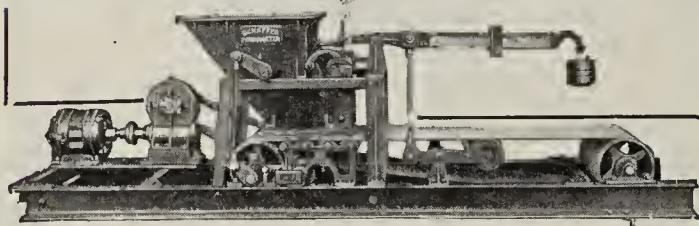
will be the cry in 1923, for the day of unskilled labor is past. If the work is to be done at a price commensurate with buying power, you must have more machines and fewer men.

The POIDOMETER is equipment for your Plant Betterment. It will eliminate your pug mill man, and mix and temper your clay more accurately with unequaled speed.

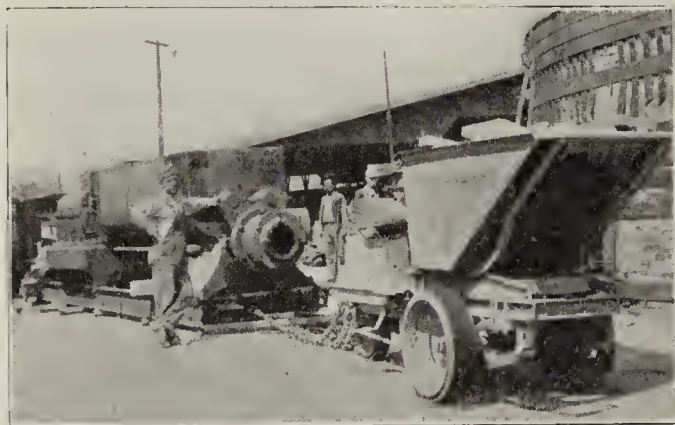


*Our engineers will
explain it in detail*

**SCHAFER ENGINEERING
and EQUIPMENT COMPANY**
2828 Smallman Street Pittsburgh, Pa.



"The best labor-saving investment we have"



Pressed brick company declares
Clark Tractor a money maker—
and orders additional machine.
It carries a load and tows a load.

CLARK TRUCTRACTOR CO.

Gasoline Industrial Vehicles

1124 Days Ave. Buchanan, Mich.

buildings in which "Bradford Reds" have been used. All the various products manufactured by the company are illustrated in color.

BUILDING LARGEST CEMENT BRICK PLANT

Work has just been started on what, it is said, will be the largest cement brick plant in the United States. It will be situated in Philadelphia, at the foot of Westmoreland Street, at the Delaware River, on property recently acquired from the Pearson & Ludascher Lumber Co.

The owners of the plant will be the Pennsylvania Brick & Tile Co., a Philadelphia corporation. The factory will be completed and in operation by March 1, it is expected, and will have a capacity of 150,000 common cement brick a day.

Cloyd M. Chapman, of New York, consulting engineer, will direct the work, and the plant will be built by the Cemprod Engineering & Construction Co., of New York, at a cost of about \$100,000 net, including the real estate, which cost \$50,000, wharves, sand supply, barging equipment, and so forth.

The sand to be used in the making of the brick will be dredged from the Delaware River, and will be delivered to the plant alongside the dock. Land connection will be by the Belt Line Railroad.

The factory building will be all-steel construction. All materials will be handled mechanically by conveying, distributing, apportioning, mixing and compressing machine, so that the work will be continuous from the time the sand and cement are dumped until the finished product is produced.

All of the product of the factory will be sold within ten miles of the plant, officials of the company state. The brick to be manufactured differ from the ordinary cement brick in that in their making an "accelerator" is used, which makes the brick ready for shipment within 48 hours after manufacture, about half the time ordinarily required for concrete to set.

"The accelerator," which is also known as a "brick flux," is a chemical addition to the water used in mixing concrete.

Only common building brick will be turned out at first, but it is proposed later to make face brick and concrete tile for foundation walls that are to be stuccoed or plastered.

The largest cement brick plant in operation at present is the Adamantex Brick Co., of Maryland, Inc., at Arbutus, near Baltimore. This plant was opened last June and has a capacity of 100,000 brick a day. It also manufactures face brick. There are two other large plants, one at Haverhill, Mass., and another near Boston.

Cement brick manufacturing, until the last year or so, has been termed a "back-yard" industry. It is estimated that about 10,000 small plants exist thruout the United States. The unprecedented demand for brick of all kinds has caused the establishment of these large cement brick factories. They shut down only in very cold weather.

HERBERT LOOKS FOR BETTER BUSINESS

Despite the fact that 1922 was Tennessee's banner year, business men are predicting a substantial increase in 1923 over 1922's record. R. D. Herbert of T. L. Herbert & Sons, Nashville, Tenn., said, "Business in the South will be better in 1923 than in 1922; especially the first six months of the year."

BRICK SHORTAGE IN CLARKSVILLE

Clarksville, Tenn., is experiencing a serious shortage of brick. So acute is the shortage, it is holding up work on public schools that should have been completed in 1922. Prices in Tennessee remain fairly steady, and brick and clay products plants are running full time.

CHEROKEE TO START BUILDING NEW PLANT

J. Albert Robins, of Knoxville, Tenn., has been named president of the recently organized Cherokee Brick Co., of

that city, and preparations are now under way to get the new plant of the company started at a very early date. The company includes mainly a group of well known Knoxville business men. A site of about 20 acres has already been acquired at Knoxville, where the plant will be constructed, and machinery has been ordered for a capacity of 40,000 brick daily. It is expected that the plant will be completed and ready to operate by early next spring.

Others officers of the corporation are: E. C. Campbell, vice-president; E. C. Wright, secretary and treasurer. Directors are Mr. Robins, E. C. and R. G. Wright, Grover C. Davis, J. L. Burnett, W. J. Chastain, W. A. Fowler and James B. Wright.

INTERNATIONAL INCREASES OUTPUT.

Production at the plant of the International Brick Co., at El Paso, Tex., has been increased approximately 50,000 brick per week and double the number of men have been employed, it is reported. Orders from Arizona and New Mexico have been responsible for the increased operations. This company has some 60 men on its pay roll and is at present manufacturing approximately 80,000 brick and tile daily.

EXPECTS BIG BUSINESS IN 1923

Roy G. Smith, manager of the Acme Brick Co., Fort Worth, Texas, visited the office of Brick and Clay Record on December 28 and stated that business conditions were very favorable in his section of the country. The Acme Brick Co. operates several plants in Texas and Arkansas. They produced 34,000,000 brick this year and hope to make it 50,000,000 next year. Two Bonnot brick machinery outfits and a Steele cutter have been purchased to replace obsolescent machinery. Mr. Smith says the labor situation is easy. The company pays 15 cents for gas. The only thing likely to hinder business this year, Mr. Smith says, is the car supply.

FORM \$100,000 COMPANY IN ONTARIO

Ontario Shale Brick, Ltd., Hamilton, Ont., has been incorporated with a capital of \$100,000 by Henry Busk, Edward Carleton, W. S. White and others to manufacture brick, tile, terra cotta, pottery, drain tile, and so forth. Henry Busk was formerly plant manager of the Cooksville (Ont.) Shale Brick Co., Ltd.

W. G. WORCESTER AIDS SASKATCHEWAN MANUFACTURERS

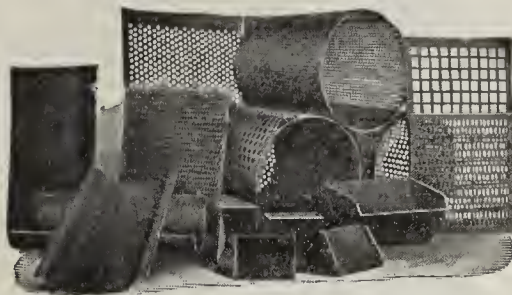
Prof. W. G. Worcester, of the University of Saskatchewan, Saskatoon, Sask., is making an investigation into the possibility of finding some method of firing kilns with low grade lignite such as is found in Saskatchewan. Hon. J. G. Gardner, Minister of Labor in the Saskatchewan Government, said regarding Mr. Worcester's work: "Mr. Worcester has spent considerable time, not only in solving problems of plants now in operation, but also in rendering expert advice and assistance to new firms using Saskatchewan clays. As a result of his activities so far one firm will, in all likelihood, begin shortly the manufacture of a high grade fire brick, feeling they have much greater possibilities in this field with their raw material than they have in the manufacture of building brick.

"Another firm, whose clay has been thoroly tested and analyzed by Mr. Worcester, is making considerable changes in the class of material they will manufacture.

"A third firm will shortly adopt the forced draft system of burning which has been determined as being better suited and more economical for the class of material it is handling.

"As a result of his testing and analyzing of the materials controlled by another firm that company has begun the manufacture of both brick, scouring powder, stove linings, and other materials."

HENDRICK SCREENS FOR ALL PURPOSES



ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION

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DIESEL ENGINES FOR CLAY PLANTS

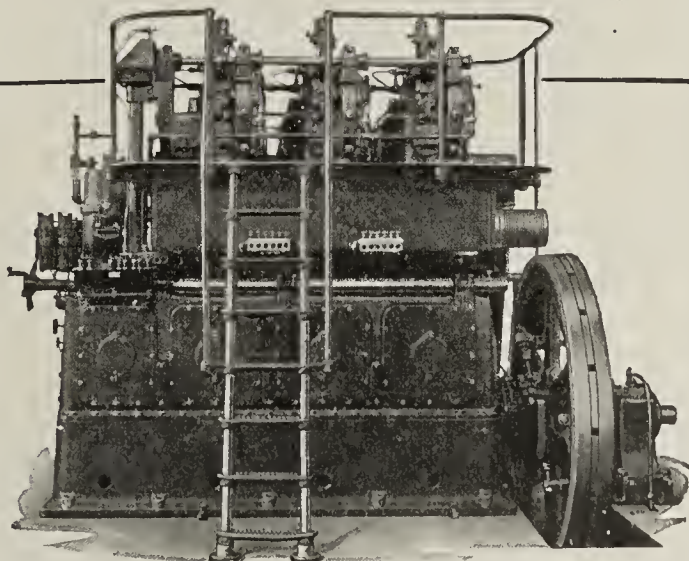
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

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THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.



No. 305
\$4.25 per Doz.
\$48 per Gross Pair



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To any clay products manufacturer who has not been using Des Moines Hand Pads that will clip out the hand pad shown here and mail it to us on his letterhead, we will send FREE a pair of Des Moines Pads.

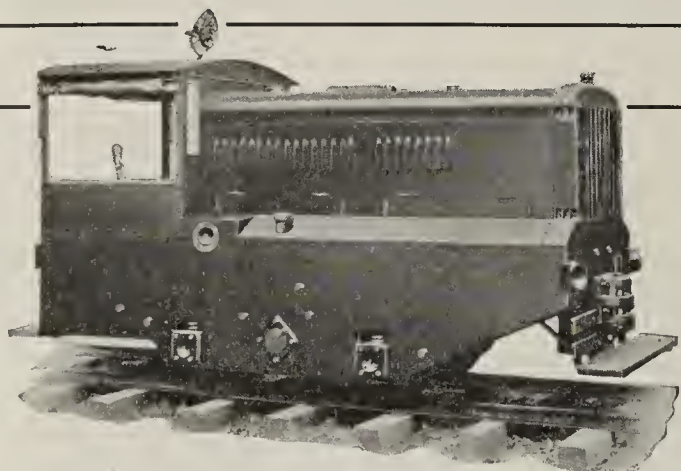
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508 FOURTH ST., DES MOINES, IOWA



No. 300. \$7.80 per doz. \$90 per Gross Pair



THE MOST EFFICIENT

RELIABLE and ECONOMICAL gasoline locomotive for service about clay plants, both large and small.

Built in 2 to 8 ton capacities.

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Eastern and Export Department
The Herbert Crapster Co., Inc.,
1 Madison Ave., New York City

"MINSTER"

INDUSTRIAL LOCOMOTIVES

FIND DIATOMACEOUS EARTH DEPOSIT

A report has been received stating that a new deposit of diatomaceous earth has been opened in the state of Maryland on the Potuxent River and is now being prepared for market. Tests have been made at the Ohio State University of insulating brick reported to have been made from this new material. These tests show it to have greater insulation qualities than any similar brick now being made.

✻ ✻ ✻

REORGANIZING GOVERNMENTAL DEPARTMENTS

Plans for the reorganization of governmental departments, which it is reported will be submitted to Congress soon, will include changes which are of interest to the clay industry. Recommended transfers of departments or divisions in which the clay industry is interested are:

	From	To
	Dept. of	Dept. of
Bureau of Public Roads	Agriculture	Interior
Supervising Architect	Treasury	Interior
Bureau of Mines	Interior	Commerce
Bureau of Customs Statistics	Treasury	Commerce
U. S. Railroad Labor Board	(Independent)	Labor
Budget Bureau	Treasury	(Independent)

✻ ✻ ✻

THE BUILDING SITUATION

(Continued from page 29)

New Jersey

December construction in the northern district is holding well with that of a month ago. At Newark, the eleven months of the year show a gross of \$26,324,852, as compared with \$18,844,315, during the entire twelve months of 1921, an increase of \$7,480,537.

Trenton, Camden, Atlantic City and other prominent sections in the southern district are all recording increases, ranging from \$100,000 a month upwards. Smaller communities, such as Bridgeton, show a gross of \$1,000,000 for operations for the year, breaking all previous records.

The poor quality of brick that is reaching Newark has led the local building department to issue a formal notice of warning, stating that it will positively not permit the use of soft brick, as now being found on the jobs; walls so constructed, will be condemned immediately by the department. The material is from Jersey's own seasonal yards, and certainly is no credit to the producers.

Pennsylvania

Philadelphia shows no let-up in building activities, and permits continue on a basis of over \$2,000,000 weekly for all classes of work. The city demands for brick are keeping all plants running full, and with little opportunity to ship out of town.

The Philadelphia Building Congress is developing a plan for relieving the heavy pressure on the building industry in certain months of the year, with a view to stabilizing the situation so as to assure reasonable activity at different seasons in normal years and eliminate unemployment. The local Builders' Exchange is also working on the problem.

Cities in Eastern and Central Pennsylvania are making heavy increases in construction, including Lancaster, Reading, Wilkes-Barre, Scranton and vicinity.

Columbus

The year 1922 was one of the best in the history of the building department of Columbus, Ohio. The report shows that a total of 5,767 permits was issued during the year, with a total valuation of \$18,190,500, as compared with 4,750 permits and a valuation of \$9,265,110 in the year 1921. The

Robinson's Clay Working Equipment

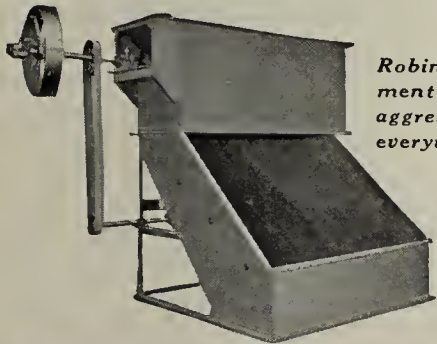
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Kiln Bands Dryer Cars
Screens Pallets
Steel Rails and Portable
Track
Brick and Tile Machinery
Rock and Shale Crushers
Wire Rope—in fact, every-
thing for the clay plant.

Ask for our catalog and prices

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office PITTSBURGH, PA.



*Robinson's Equip-
ment is used by
aggressive plants
everywhere.*

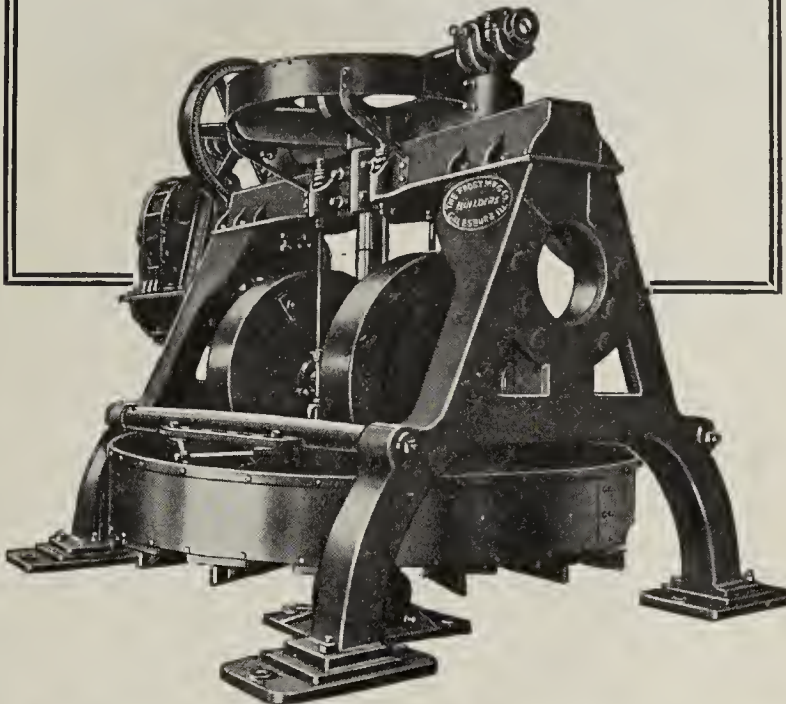


237

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

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GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

Bullitt Building Philadelphia, Pa.

Grinding Plant: Plymouth Meeting, Pa.

FOERST FUEL OIL BURNER

will burn any grade of fuel oil, producing
greater and quicker heat with safety and
perfect flame control. Non-clogging. As-
sures increased output of ware—reduction
of burning time—and cut in costs.

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REPRESENTATIVES
Baumes-McDevitt Machinery Co., St. Louis, Mo.
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*Estimates furnished on
Complete Installations*



Clay of High Value

in territory just 40 miles from
Pittsburgh

This is an ideal location to build that new plant. It is along the P. L. & W. R. which connects with both the Pennsylvania and Erie Systems.

Read the analysis:

Coal—No. 6	Clay—No. 3
Water.....2.200	Silica.....59.84
Volatile Matter.....35.540	Alumina.....25.96
Fixed Carbon.....54.705	Iron Oxide.....1.68
Sulphur.....1.725	Titanium Oxide.....1.60
Ash.....5.830	Magnesium Oxide.....1.08
	Sulphuric Anhy- dride.....Trace
	Alkali Oxides.....1.22
	Fusion Point.....3020° F.

Be sure and get full particulars in regard to the rich land if you contemplate building a new plant.

Write today

The Pittsburgh, Lisbon & Western R. R. Co.
Lisbon, - - - - - Ohio

In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

* * *

BURKE ELECTRIC CO.

MAIN OFFICE AND WORKS
ERIE PENNSYLVANIA

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record on valuation is practically double that of the previous year. During the month of December the department issued 271 permits, having a valuation of \$619,300, as compared with 208 permits and a valuation of \$394,665 in December of 1921. A total of 1,762 dwellings were licensed in 1922, having a valuation of \$8,835,050, as compared with 1,073 permits for dwellings, having a valuation of \$5,151,915, in the previous year.

Chicago

12,591 permits were issued during 1922 in the city of Chicago, which establishes a high record in the history of the building department. These permits involve an expenditure of \$221,145,000 which exceeds the best previous record by approximately \$100,000,000. Among the permits were enough residential buildings to add 25,000 new homes to the city. Instead of the usual seasonal decline during the winter months, December will, in all probability be the banner month of the year. Permits to exceed in value \$25,000,000 have been issued for the last month of the year. According to all indications 1923 will continue at the 1922 pace.

Indianapolis

With a total of \$26,055,297 represented in building, a new record soaring above all former marks by a large margin, was set in Indianapolis this year. The valuation for 1921 was \$18,328,965. The number of permits issued this year also exceeds those of last by a large figure. A total of 13,581 were granted this year as compared with a few more than 10,000 last year. Permits were issued for the construction of 22 buildings costing \$100,000 or more, and 20 permits were granted for buildings costing between \$50,000 and \$100,000. The report shows a total of 4,353 new housing units constructed during the year, including 2,681 new dwelling houses. Indianapolis ranks about twenty-third in the list of cities of the country, but this year ranks sixteenth in the volume of new construction, according to available statistics.

* * *

AN UNCOSTLY COST ACCOUNTING SYSTEM

(Continued from page 35)

figure represents every possible cost that can be charged to the manufacture of the tile, including depreciation, overhead, interest, and so forth. By subtracting this figure from the amount of the proceeds for this size of ware, \$588, we obtain the total margin of profit for this item, in this case \$112.89. By dividing the tonnage as found in column VIII into this latter figure in column XIII, we arrive at a margin of profit per ton which is entered in column XIV, in this case \$1,536.

The lower part of Sheet No. 4 gives the same information for the present year up to date, including the past month, as the upper part of sheet No. 4 gives for the month just past. We have omitted the other figures on sheet No. 4 because the method of obtaining them is easily understood and we feel that too many figures will only complicate the explanation. They are all worked out on the same basis.

The total of all of the figures in the lower part of column XIII on sheet No. 4 represents the total profits for the entire year up to date. This figure on the last report for the year, that is, December's report, will show the entire total profits for the year. This figure agrees with the total profits as shown by a balance sheet taken from our books.

System Furnishes Points for Study

Many other points for study, in addition to those explained above can be found by comparing the figures shown on these sheets. That is what a good cost system is for—to furnish items for study regarding the past and future operation of the plant. The few examples explained above show the ease with which present costs can be compared with those of past

periods and be made the foundation for improved methods in the future. The examples given show a few of the beacon lights afforded by this or any other good system—beacon lights that show clearly where costs are going up and what points should be investigated. It is very evident to anyone familiar with factory operations that conditions around a plant always have a tendency to change one way or another. Many factory managers spend useless time and energy to correct conditions in directions that do not need correction. They think that certain conditions need correction, but their judgment is frequently erroneous. Anyone can make these mistakes of judgment easily, in fact it is being done right along.

A cost system is like a block system on a railroad. If costs are at the same level or going down, a green or white light is flashed on the scene, indicating that everything is clear ahead unless something unforeseen occurs. On the other hand if costs are going up, a red light is flashed on the scene and the factory manager knows at once that that is where his energies are needed and he throws all of his ability in that direction, to correct those deficiencies. The most beneficial function of a good cost accounting system is to tell the executive what needs attention, whether costs are too high or prices too low. Our system has fulfilled this function most successfully in every particular.



N. J. MEN DISCUSS PLANT PROBLEMS

(Continued from page 49)

upon the character and design of furnace and equipment used.

Assuming the thermal efficiency of coal, gas and oil to be the same, a comparison of their cost, as well as all labor, maintenance and sagger breakage charges, readily can be secured. A tabulation of the results for a typical month at the plant was shown as follows:

Coal Firing—

Cost of coal in storage, per ton.....	\$ 6.05
Labor cost	2.72
Maintenance	1.42
Sagger breakage	2.95
Total	\$13.14

Gas Firing—

Cost of gas (28,000 cu. ft. at 45 cents).....	\$12.60
Labor cost	1.04
Maintenance .....	.24
Sagger breakage	1.22
Total	\$15.10

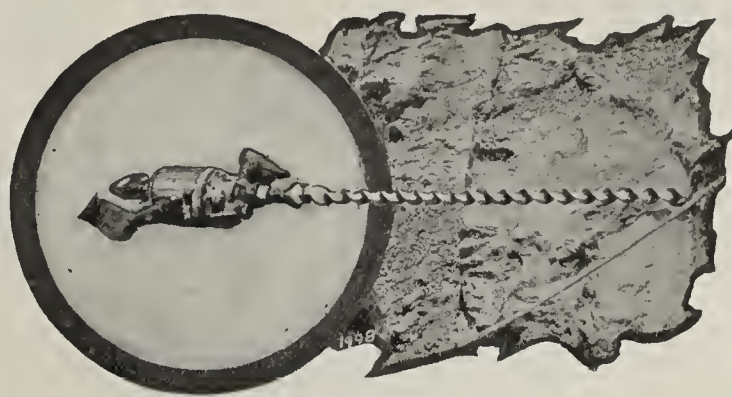
Oil Firing—

Cost of oil (197 gals. at 6¼ cents).....	\$12.25
Labor cost	1.04
Maintenance .....	.87
Sagger breakage	1.53
Total	\$15.69

Expressed in percentage, the figures would be as follows:

	Coal	Gas	Oil
Fuel	46.2	83.5	78.2
Labor	20.4	6.9	6.6
Maintenance	10.8	1.6	5.5
Sagger breakage	22.6	8.0	9.7
	100.0	100.0	100.0

It can be seen from these tabulations, it was stated, that in the case of gas and oil, the problem is one of economical purchasing, while in the case of coal, all items must be given due consideration, particularly that of personnel, on account



Electrically!

WHEREVER there's a current outlet, either D. C. or single, two or three-phase A. C., Little Giant Electric Coal Drills are widely used for shot-hole drilling and repair work.

For example, the A. P. Green Fire Brick Company, Mexico, Mo., using the Little Giant Electric Coal Drill illustrated, drilled fourteen four-foot shot holes through plastic, semi-plastic and flint clay while a hand auger drilled one such hole.

Put your shot-hole drilling and repair jobs on a production basis. Use Little Giants.

Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company

Chicago Pneumatic Building, 6 East 44th St., New York

Sales and *Service Branches all over the World

*Birmingham	*Detroit	Houston	*New York	*San Francisco
*Boston	Denver	*Los Angeles	*Philadelphia	*Seattle
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R-29

BOYER PNEUMATIC HAMMERS · LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS · VACUUM PUMPS · PNEUMATIC HOISTS
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LITTLE

Coal



GIANT

Drills

ATLAS

EXPLOSIVES

for quarrying



THE use of millions of pounds of Ammite demonstrates its efficiency. It is non-freezing, and—you do not have to endure a “powder headache” as when handling ordinary forms of dynamite. Ammite, made in various grades, requires no thawing, saves time and labor, cuts the cost of blasting. Let the Atlas Service Man help you determine what grade will save money for you. Write nearest Branch.

AMMITE

ATLAS POWDER COMPANY
WILMINGTON, DEL.

Branch Offices:

Allentown, Pa.; Birmingham, Ala.; Boston; Chicago; Houghton, Mich.; Joplin, Mo.; Kansas City; Knoxville; McAlester, Okla.;



Branch Offices:

Mexico City, Mexico; New Orleans; New York; Philadelphia; Pittsburg; Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis; Wilkes-Barre.

of the disagreeable character of the work and the overlapping of responsibilities necessitated by the different working shifts of 8 to 12 hours each, as the case may be.

Results Should Be Equal With Each Fuel

With particular respect to oil, its economical use will depend in a large measure upon being able to store it in quantity, preferably for a period of six months, for by purchasing in the late summer months, a sufficient saving usually can be effected to compensate for the storage.

In the matter of the effect of the different fuels upon the ware, it was set forth that this company is of the firm opinion that with very few exceptions, equal results can be secured with each fuel. If otherwise, it is due more to lack of experience and furnace design than to the fuel itself.

Burning Porcelain With Oil

The next speaker was John A. Williams, Mitchell-Bissell Co., Trenton, manufacturer of textile porcelain products. The matter of using oil fuel was one of necessity for this company, owing to the difficulty in securing coal upon the opening of its new plant in the fall of 1919.

It was pointed out that all necessary equipment was acquired in duplicate, including two oil pumps, two air blowers, two strainers. Each kiln was equipped with six burners, and essential air piping, air gage, valves and so on. The production is on a one-fire basis, going to Cone 12, and firing the body and glaze all at one time. It is a highly vitrified product.

The system is for medium pressure oil, about 30 pounds, and the air pressure is low, about three or four ounces; it is an economical system to operate. To control the burner, just a little judgment is necessary in mixing the air and oil. While oil does not require the time and attention of coal, you cannot just light the burner and let it go; it must be watched and consideration given to the burning.

Use Pyrometers to Regulate Burn

“Pyrometers are used for the control and good burning of our kilns,” said Mr. Williams. “We explain to the firemen as to how fast we desire to burn, and how many degrees we want to increase per hour.”

It is found to advantage to use two different size tips on the burners, Mr. Williams pointed out, the smaller one being placed in service at the beginning and run until its maximum is reached. It is better in regulating the burners never to give them the absolute maximum.

Following Mr. Williams, Donald Hagar, Mosaic Tile Co., gave comprehensive outline as to what his company is accomplishing with the use of oil fuel. The system is of low pressure type. The burners are equipped with mixers for admitting the auxiliary air, providing a further regulation for lengthening or shortening the flame. A rotary pump delivers the oil from the storage tank, thru a heater to a one-inch circular pipe which surrounds each kiln, and thence to the burners. A steel storage tank is used, with capacity of 21,000 gallons, or two large tank cars.

Atomization Important Factor

Two important factors in connection with the operation of the system are the atomization of the oil and the amount of air admitted to the burners. In regard to the first, it was pointed out that the degree of heat depends upon the viscosity of the oil, and a thick oil will not give as good results as a thinner one at the same temperature. The distance between the heater and the burners must also be given due consideration, as much heat may be lost thru radiation if the space is too great, and the pipes are not well insulated.

Mr. Hagar's paper was illustrated with a number of interesting slides on the screen, showing various features of the plant installation.

R. L. Clare, Federal Terra Cotta Co., followed with an


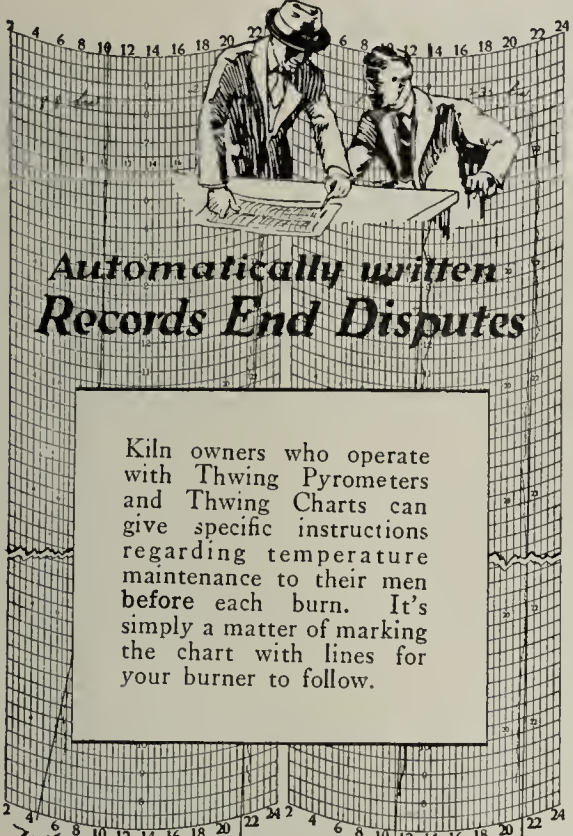



CHART No. 2-X-209 A 5 F 200-2400



**Automatically written
Records End Disputes**


Kiln owners who operate with Thwing Pyrometers and Thwing Charts can give specific instructions regarding temperature maintenance to their men before each burn. It's simply a matter of marking the chart with lines for your burner to follow.



The Record of Each Burn is a Check on Your Burner's Efficiency

It shows at a glance, leaving no room for argument, whether instructions are followed. As a record for future work it provides an ever-ready reference chart on which to base other operations.


These advantages and the fact that it assures maintenance of uniform temperatures make the Thwing Pyrometer an investment in economical production.



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Thwing
PYROMETERS

Thwing Instrument Company
3347 Lancaster Ave. Philadelphia, U. S. A.



Canvas Belting
Waterproof

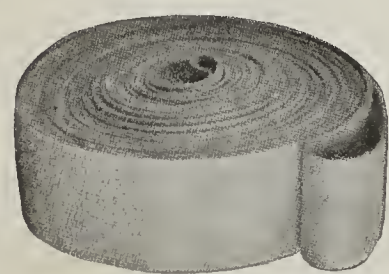
Always on the Job

GREEN DUCK BELTING will give you continuous service day in and day out. No expensive delays for repairs or for taking up stretch. Wears like iron in the grit and dust of clay plants. Oil, water or hard work does not affect it. Only the best grade of duck is used.

Tell our Engineering Department your requirement. They will see that you get a sample of the right width and ply belt, as well as complete estimate.

*No Obligation.
Write to-day.*

The Allied Belting Co.
GREENVILLE, OHIO





Firemen Pay Close Attention To Kilns with—

WILSON-MAEULEN PYROMETER EQUIPMENT

*This is brought out in the installation at the
A. P. Green Fire Brick Co. plant, Mexico, Mo.*

THEY WRITE:—

"We have a TAPALOG and Indicating Instrument connected with thermo couples on 22 round down-draft kilns burning to 2200° F. This TAPALOG records SIX KILNS AT A TIME IN SIX DIFFERENT COLORS. This gives a COMPLETE RECORD OF THE FIREMEN. Due to the fact that the firemen KNOW this instrument, they PAY CLOSE ATTENTION TO KILNS, AND FIRE MORE OFTEN, making MORE HEAT, FASTER BURNS—USING LESS COAL."

WILSON-MAEULEN COMPANY
Concord Ave. and E. 143rd St., NEW YORK



Let us show
YOU how WIL-
SON-MAEULEN
equipment will
fit into your
Plant Better-
ment. A postal
card will get
complete infor-
mation.



interesting digest of the oil-burning installation at his company's plant, illustrated with lantern slides. He pointed out that the necessary equipment included a suitable tank storage, with heating coils, two small oil pumps, small intermediate tank to reduce the pulsations on the pumps, air compressor or blower, and burners and piping.

Oil in Terra Cotta Burning.

G. M. Tucker, New York Architectural Terra Cotta Co., the next speaker on the program, gave a brief talk on the subject, dealing primarily with the different advantages to be secured thru oil firing. He described the equipment installed at his company's plant, which includes five depressed oil reservoirs, varying from 10,000 to 25,000 gallons in capacity; small duplex pump, steam operated; internal mixer type oil burners, and so on. Various character fuel is used of from 18 to 20 degrees Baumé, and with equally good results.

The last speaker scheduled in the symposium was C. F. Geiger, of the Carborundum Co., giving an interesting talk on the subject of oil burning, with particular reference to the application of refractories as manufactured by his company for intensive service.

Purdy Asks Cooperation

During the afternoon session, Ross C. Purdy, general secretary of the American Ceramic Society, gave an illuminating address in connection with cooperation between the units in the industry, and the need for intensive work in the line of research.

With the appointment of a nominating committee to act during the coming year, and a rising vote of thanks to those addressing the meeting during the sessions, the meeting was concluded.

Mr. Minton, the retiring president, was presented with a specially engraved gavel by his associates on the Executive Committee of the organization.



CANNELTON SPENDING \$250,000 ON ADDITIONS

Additions to its plant, which the Cannelton (Ind.) Sewer Pipe Co. is planning to make early in 1923 will more than double the capacity and will cost approximately \$250,000. A new building, 208 feet long, 62 feet wide and four stories high, will be constructed. Two additional 150 horse power boilers will be installed necessitating an addition to the present boiler room. A large new stack 120 feet high, and 18 feet wide at the bottom will be built. Eight new 32 foot kilns will be constructed, making a total of 22 kilns at the plant.

Among the equipment to be installed is a 350 horse power Corliss engine of the best type; two wet pans; one ten foot dry pan; electric vibrating screen; 44x60 inch press; two gravity elevators; steam hydraulic elevator; conveyor 179 feet long, running at a 12 degree angle.

The office space will also be enlarged and a new side track, 830 feet long, running parallel with the kilns and new building, will be built.

To operate the plant with the increased capacity will require 75 more men and the present production of 15,000 tons or more will be increased to 35,000 tons a year. H. M. Clemens, manager of the plant, says the company hopes to reduce the cost of production, take care of increasing demand for Cannelton sewer pipe, and to manufacture pipe up to 36 inches in diameter as well as a patent segment block for sewers.

The officers of the Cannelton Sewer Pipe Co. are Henry Bosquet, president; Fred Colby, vice-president; H. M. Clemens, general manager; A. P. Clemens, treasurer; C. A. Clemens, sales manager; and E. F. Clemens, secretary.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

(The Slogan Selected Will Appear Here)

(The opinion of our readers, expressing the purpose and spirit of this publication)

Associations Can Assist Bricklayer Schools

THE INCREASING NUMBER of bricklayer schools being established in various cities thruout the country and the continued success of the movement brings forward the thought that some method should be established for comparing notes on the success attained in the activities.

This question should be considered very seriously because neither the factory price nor the delivered price determines whether or not clay products shall be used in any given building. The only price that has a bearing on the decision when two or more materials are under consideration and price is a determining factor, is the price laid up in the wall. It is necessary, therefore, that every possible precaution be used to reduce the total cost of the ware laid in the wall.

The labor of laying up brick and tile is high and is growing higher all of the time. This is due entirely to the fact that the demand for competent masons is greater than the supply. The remedy, therefore, lies in increasing the supply of experienced masons. The bricklayer schools furnish these experienced men, but up to the present the results have not been coordinated or used to assist in starting additional schools.

Naturally the several associations are best fitted to assist along these lines but only in an advisory way. Each association can pick out one man who is especially qualified to start schools of this character. He must be an experienced mason and also possess some executive and teacher ability. Each association can furnish the name of this man to any group of manufacturers in any city or locality that desires to start one of these schools. The association should not pay any of the expenses or salary of this man since not all members will be benefited but these payments should be borne by the manufacturers in the city or district in which the school is to be started. The work of the association should be directed toward investigating and establishing the fitness and ability of the man for this particular work.

This assistance by each association ought to help greatly toward increas-

ing the number of these schools and, therefore, increasing the number of experienced masons without in any way antagonizing or opposing the union of brick masons. This movement is in no way anti-union.

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Tell the Public About Paving Brick

THE MOST IMPORTANT NEED of the hour in the paving brick industry is publicity, and lots of it. Ever since 1916 there has been a comparatively small amount of brick paving. Various conditions have contributed to this situation, all of which are pretty well known by paving brick manufacturers. However, during these years of low activity people have had their attention drawn away from paving brick. On the other hand, competing products have contributed their advertising and as a result occupy a more ready place in the consumer's consciousness than brick.

Moreover, there have been streets and roads laid of brick which are partial failures—not due to the brick it is true, but nevertheless, they are rough and uneven and create an unfavorable impression. The public does not know how old they are or how poorly the pavement was constructed; hence, paving brick undeservedly gets a black eye. It is up to the manufacturer to counteract these adverse impressions and the way to do it is to tell the story in newspapers and magazines.

This year is going to be one of tremendous road building. According to figures that have appeared in the daily press there will be about 14,000,000 automobiles used in this country this year and every eighth person will own one, or say one for every other family. When persons begin to use roads they become more critical of road design. Also, with more traffic on roads, there is greater need for streets and highways of the most permanent type of construction.

Not only will there be a big increase in the number of passenger vehicle owners who desire better highways but the motor truck manufacturers are reporting better business and motor trucks demand nothing but the very

highest type of pavement construction in order for it to endure.

There never were so many good arguments for the paving brick manufacturer to talk about—there never was a greater interest and demand for good roads—there never was a better opportunity and a greater need for the paving brick manufacturer to advertise intensively than right now!

✻ ✻ ✻

Coal Situation Clearing Up

THERE IS cause for much pleasure in the recent development of the coal situation. Contrary to their early anticipations, and as a surprise to a great many men whose judgments have already been considered sound, there has been a notable progress made toward an agreement between coal operators and mine workers for the continuation of peace and production for another year.

The first development which gives ground for easier feeling is contained in the statement made by the United States Coal Commission on January 15, which is quoted as follows: "... this commission has reason to believe that an agreement will be reached in the near future that will avert any widespread cessation of mine operation in the union fields on April 1, thus assuring the needed coal supply for at least another year."

This assurance coupled with the fact that since the report was written, further steps have been taken by the mine operators and union officials in their meeting in New York which seems to strengthen it, is of the utmost importance to all industry.

The fact that an agreement upon which wages and working conditions in the bituminous coal industry have been determined almost continuously since 1898 was scrapped, is hailed as a good omen. It is very significant that every serious effort is being bent to secure peace when such a drastic action was taken as to sweep aside a steadfast agreement which has existed for years and over which operators and miners split last year.

These straws indicate that the prospect for an increasing measure of prosperity is much more certain.

Commission Reports on Coal Industry

Over-Development Fundamental Cause of Strikes, High Prices and Shortages—200,000 More Miners Than Needed—Strike in April Not Considered Likely

OVER-DEVELOPMENT is the root of discord that exists in the coal industry, and for which the public has been paying an enormous penalty, states the federal coal fact-finding commission in its preliminary report of January 15. There is so much controversy over many of the questions touching on strikes, miners' wages, earnings of companies, competition between fields, and so forth, that the coal commission deemed it to the best interest of the country not to express any recommendations but in its report gave only the facts and opinions after complete investigations and deliberate thought. A second and more complete report will be submitted to Congress on or about March 15. The preliminary report, however, states in part:

In reality the coal industry includes three interrelated industries—mining, transportation, and marketing. The coal mining industry, in point of numbers employed, outranks any single manufacturing industry and stands next to transportation and agriculture. Approximately three quarters of a million men are employed in this industry, of whom 90 per cent. work underground.

Over 2 Billions Invested in Coal

The capital invested, according to the rough figures of the census, is \$2,330,000,000, of which \$430,000,000 is invested in the anthracite region and the remainder in the bituminous fields. There are only 174 producers of anthracite and eight of these control over 70 per cent. of the annual output, while there are at least 6,000 commercial producers of soft coal, to say nothing of thousands of wagon mines and country coal banks. These producers operate 9,000 commercial mines.

Each coal district, if not each mine, has its own local customs and problems, determined by the quality of coal, thickness of seam, attitude of the bed, conditions of mining, the markets which it can reach, its freight rates, its labor policy and other factors. In the matter of wage scales, even in the union districts where wage scales are determined by joint agreement, we find variations from district to district and from mine to mine. Still more difficult to summarize are the wage rates in non-union mines. Not only are these wage rates complicated, but the opportunity to labor varies so greatly from field to field or mine to mine, depending on character of coal, nearness to the market, and commercial connections, that it is hazardous to make any generalization concerning miners' earnings.

Determining Average Cost and Profit

No less difficult under such conditions is the determination of average cost or profit. These subjects require specific and very detailed, painstaking investigation, which is complicated by the varying prices charged and received for the coal, quantity and quality both entering into the subject. The bituminous output is consumed approximately in the following percentages: Railroads, 28; industrials, 25; coking, 15; domestic, 10; iron and steel, 7; public utilities, 7; export, 4; mines, 2; bunkers, 2.

The coal industry does not end at the mine. Some 180 railroads take the coal at the mine mouth and transport it to thousands of destinations. Because the railroads are the largest customers of the bituminous industry, and because coal—anthracite and bituminous—constitutes one-third of the railroads' freight the problems of the two are closely in-

terwoven and their interests interdependent. Not only does irregularity in coal output mean serious fluctuations in revenue but excessive irregularity imposes impossible traffic demands on the railroads. On the other hand, interference with rail transportation means a corresponding stoppage of output for the mines and shortage of fuel for the consumer. No solution of the coal problem can be found that does not recognize this community of interest between coal and transportation. But this community of interest, tho simply stated, is not simple upon examination. The movement of coal by rail and water is complicated by variations in freight rates, arbitrary differentials, and competition, between different coals and between carriers.

Deficiencies in Service

Combined charges of the railroad, the wholesaler, and the retailer in most localities exceed the price of the coal at the mines. Therefore it is readily seen that the problem whether the transportation and marketing charges are just and fair is of the utmost concern to the consumers of coal.

HIGH LIGHTS ON COAL INVESTIGATION

In its preliminary report to Congress on the coal industry, the United States Coal Commission declared:

"The coal problem begins with a contradiction. Rich beyond all other nations in its wealth of coal resources, the United States experiences coal shortages and high prices. The coal deposits of the country are abundant and well distributed. Yet, with resources of coal in the ground, adequate for the needs of perhaps a hundred generations, the nation's coal bin is too often depleted and the prices too often higher than seemed warranted.

"Collective bargaining should rest upon reason, not force. An exhaustive investigation is to be made of the efforts of the union to organize non-union miners and of operators to thwart them.

"To expect the railroads to provide a hundred per cent. car supply on the basis of present mine-ratings would create a car surplus or a coal surplus far beyond the ability of the market to absorb.

"There can be no permanent peace in the industry until over-development, the underlying cause of instability is removed.

"A determination of the reasonableness of transportation and marketing charges is of utmost concern to consumers.

"An agreement seems likely to be reached between bituminous operators and miners and any widespread cessation of operations in the union bituminous fields on April 1 seems improbable."

How many there are we do not yet know, but there are certain mines which contract a part of their potential output, reserving the balance for spot coal. These operators guard themselves against car shortage by clauses which compel them to fill their contracts only in proportion to the relative car supply. So in recent years, when speculators with contracts could get only a partial supply of cars, say, 60 per cent., they would use only that percentage of available cars for deliveries upon their contracts, while the other cars would be used for spot coal; that is, they prorate their contracts with the sole purpose of having free coal for a higher spot market.

The record of production and distribution of coal in recent years may be summed up in the word "instability," and this instability in the supply of one of the most fundamental of all raw materials has been an important cause in unsettling business and in delaying the return to normal times.

Large Profits

It has been suggested to us that one of the causes of high prices of coal is profiteering. There has been profiteering in the sense that grossly exorbitant profits have been taken at times by many operators, brokers, and retailers; profits that have been disproportionate to the cost of the coal or the service rendered or the risk incurred.

But this Commission has not yet obtained the figures for the past ten-year period specifically required by the Act in order to settle this question. A thoro examination of the profits of production and distribution, including the revenue derived from associated enterprises, is already under way.

Labor Difficulties

Others attribute the instability in the coal industry primarily to labor troubles. There can be no doubt that two or three periods of high prices since 1916 have been caused largely by labor troubles.

Whatever the cause or the merits of the labor controversy, it is clear that an indefinite repetition of these crises in the production and distribution of coal would be intolerable. Industry and the home alike must be free from the menace of constant interruption of their coal supply.

We are seeking to promote industrial peace by ascertaining and publishing certain facts. The first group of these includes reliable data on wage rates and earnings, on the volume of employment, on the costs and profits of the industry, on the competition of other fuels and of coal produced by non-union mines. All of these subjects the Commission's staff is now studying, and the results of its investigations will be made public in supplementary reports to Congress as fast as they become available. Up to this time returns on costs are already received and are being analyzed from about 2,000 operators, representing about 40 per cent. of the total bituminous output.

Collective Bargaining Should Rest Upon Reason

A second group of facts required includes the effect upon the industry of provisions for the check-off of union dues, participation in management or limitation upon freedom of management, and other working conditions. This also involves investigation of what causes petty strikes, resulting in costly stoppage of operations.

Collective bargaining should rest upon reason rather than upon force. American law and American public opinion recognize the right to organize into unions and the right to work without let or hindrance. It is alleged by the mine workers that in Logan County, West Virginia; Somerset County, Pennsylvania, and elsewhere, free speech and peaceful persuasion have been denied, in violation of the law. It is charged by operators, on the other hand, that the agents of the union have resorted to violence in their efforts to organize the non-union fields and thereby to lessen competition of non-union coal produced at lower costs.

Car Shortage

An opinion commonly expressed before the Commission is that the primary cause of scarcity and high prices of coal is transportation deficiency.

The so-called "car shortage" is not always due to insufficient coal-carrying equipment alone. In part it has been due to an overload upon the transportation system beyond what that system could reasonably or properly be expected to bear.

Since the resumption of work, in August, 1922, after five

months' cessation, more bituminous coal has been offered for shipment than the railroads have been able to carry, but only by investing money in a transportation system vastly in excess of reasonable requirements may the people of the country expect the railroads to make up within a few weeks the consequences of the five months' suspension of a large part of the coal mining.

At the beginning of 1923 the bituminous coal industry presents to the country its usual contradictions. The one complaint common to most of the coal mining territory is that of "car shortage;" yet the outstanding fact is that, in spite of a miners' election day and the Christmas holidays, the coal mines produced in December, 1922, over 46,000,000 tons of soft coal. An actual shortage of anthracite has kept domestic consumers on the verge of a buyers' panic, restrained only by the cooperation of the larger coal operators with the Federal and State fuel distributors, yet the 46,000,000 tons of soft coal was probably sufficient for the country's needs for current consumption, even in December, if evenly distributed. The fact that low coal reserves in the hands of consumers are not being rapidly replenished doubtless adds to the fear of scarcity, yet a full-car-supply for the country's soft coal mines, as rated by the railroads, would have furnished transportation in December for more than 75,000,000 tons, or 20,000,000 tons more than the country ever took from the mines in a single month. Plainly, "100 per cent. car supply," as based on such inflated ratings, would create a car surplus or a coal surplus far beyond the ability of the market to absorb.

Overdevelopment

Already in our study we have come to see that underlying these immediate causes of scarcity and high prices—labor difficulties and transportation deficiency—are other causes; namely, the irregularity of demand and the overdevelopment of the mining industry. These basic factors apply directly only to bituminous coal, but indirectly they affect anthracite as well, for anthracite is in competition with bituminous coal and the wage scale in the one industry is influenced by changes in the other.

We find that in the bituminous industry since 1890 the mines have averaged, over the country as a whole, only 213 days out of a possible working year of 308 days. These averages, of course, show nothing as to the relative annual earnings of individual miners or their individual opportunity to work. In 1920, a year of active demand, the average time worked was only 220 days, and in 1921, the year of depression, it dropped to 149 days, with many districts showing a figure much below this average. Over a long period comparatively little of the time lost has been on account of strikes, and that in the years when there are no strikes the aggregate time lost from all causes is about as great as in those when strikes occur. In the 23 years over which the statistical record of strikes extends, the time lost because of strikes has averaged nine days a year, or less than ten per cent. of the time lost for all causes combined.

Miner Has Short Working Year

A cause of part-time operations of the bituminous mines is the variation in demand for the product, in part annual and in part seasonal, insofar as the irregularity in demand is seasonal, greater in cold weather than in summer, the lost time in summer is unavoidable unless some means can be devised to encourage the storage of coal during the dull months. The seasonal fluctuation in demand varies greatly from one district to another; in some fields of the East it is unimportant; further West it is dominant.

Moreover, our preliminary studies show that even in times of maximum demand the mines as a whole do not work full time. In other words, the mine capacity is in excess even

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Here Are About 70 Members of the American Ceramic Society, Most of Whom You Will Meet at Pittsburgh, February 12.

A. C. S. To Celebrate Silver Jubilee

Largest Convention Planned for Pittsburgh, February 12 to 16—Divisions Have Big Programs Scheduled

TWENTY-FIVE YEARS of continuous success and growth will be celebrated by the American Ceramic Society at its Silver Jubilee convention to be held February 12 to 16 at Pittsburgh, Pa. Special arrangements are being made by the local committee and those in charge of the convention to accommodate the largest crowd which ever attended an American Ceramic Society convention.

During its quarter-century of service to the ceramic industries, the society has been successful in promoting ceramic divisions in federal bureaus and geological surveys; collegiate training in ceramic engineering and science; industrial research in cooperation and in the standardization of methods, tests and materials. The scope of the organization's work has increased tremendously during the 25 years since its organization. From a handful of ceramists who organized the society in 1898 the roster has grown until now there are numbered on its roster over 1600 individuals and corporations.

Has Published 19 "Transactions"

The American Ceramic Society has been of great service to the industry thru the publication of technical literature dealing with the production of high grade ceramic wares. During the 25 years of its existence, 19 volumes of Annual Transactions and five volumes of the monthly journal have been published containing articles of great interest to the trade.

To celebrate in a fitting manner these 25 years of achievement, the officers of the American Ceramic Society are extending a cordial invitation to all of the Society's members and friends to come to Pittsburgh for the Silver Jubilee convention. Ladies are also welcome and are invited to attend all convention sessions and social functions. The local committee has arranged special entertainment for the ladies.

Convention Starts February 12

As befits the Silver Jubilee Convention, the program of both the general sessions and the division meetings will be

an extremely interesting one and crowded with valuable papers on important topics.

The convention will be opened Monday, February 12, in the ball-room of the Fort Pitt Hotel with an address by Frank H. Riddle, the president. This will be followed by a talk from B. E. Salisbury, one of the Trustees of the Society, on Research—Its Relation to a Manufacturing Executive.

J. D. Ramsey of the Elk Fire Brick Co., St. Marys, Pa., will speak on Theory and Practice in Refractories. Mr. Ramsey is a student of his work and should be able to give some excellent ideas. Charles F. Binns of the New York School of Clayworking and Ceramics, at Alfred, will discuss the Art of Manufacture and the Manufacture of Art. DeWitt F. Ricss will outline to the attendants the industrial benefits from cooperation in research thru the Enamel Division. International Critical Tables of Numerical Data of Physics, Chemistry, and Technology is a subject on which Dr. E. W. Washburn will speak. A. E. O. Munsell will expound a Simple Method of Measuring Color.

In addition to these speakers, Dr. H. Foster Bain, Director of the United States Bureau of Mines, T. E. Wilson, president of the Pittsburgh Clay Club, and two other men prominent in the industry will speak at the general sessions.

Division Meetings at Fort Pitt Hotel

Tuesday and Wednesday, the separate divisions will hold their meetings discussing topics relating to their particular branches. These sessions will be held at the Fort Pitt Hotel which has excellent facilities for meetings of this nature.

The program for the Heavy Clay Products Division contains papers on a variety of subjects among which everyone will find something of interest. Among the subjects covered by these papers are drying, burning, elimination of waste, scumming, getting rid of limestone pebbles, automatic stokers, and a number of other extremely interesting topics. In all, there will be 20 papers presented and a general discussion on kiln burning economics.

The Refractories Division, judging by the number of papers to be presented, will have the busiest sessions of any of the sections. 36 papers are scheduled to be read covering almost as many different subjects. Among those who will read papers in this division are some of the refractories industry's authorities. This division's program contains such names as A. S. Watts, R. M. Howe, R. T. Stull, H. G. Schurecht, M. F. Beecher and many others. The Question-Box of the Refractories Division contains 13 questions which will be discussed by those present. These questions are vital problems which enter into the every day work of the manufacturer, and a solution of them will be of the greatest value. Some of the papers to be read will treat of such subjects as the slag test; testing refractories; prospecting for fire clays; refractories requirements in various industries; burning refractories; use of pyrometers; use of producer gas; description of a new tunnel kiln; insulating periodic kilns; and a variety of other subjects which are sure to be of interest. A general discussion on the Metallurgical Requirements of Refractories will also be held. This will be lead by Dr. D. A. Lyon of the United States Bureau of Mines.

Terra Cotta and Whitewares

The Terra Cotta Division has eight papers on its program. The following subjects will be discussed. Mold Shop Practices, T. A. Klinefelter; Monograph of Ceramic Literature on Terra Cotta Subjects, Hewitt Wilson; A Study of a Group of Slip Clays of the United States, Paul E. Cox and Mark A. Taylor; Various Materials Used for Patching Terra Cotta, C. W. Hill; Tests Used for Barytes in Terra Cotta Work, W. L. Howatt; Scheduling in Terra Cotta Plant, Pensyl Mawby; Magnesium Chloride Cements, C. R. Hill.

14 papers and two general discussions will occupy the time of those attending the meeting of the Whitewares Division. There will be a colloquium on Feldspar which will be led by Edward Schramm. This subject is divided into five parts, each of which will be discussed by men familiar with feldspar and requirements in the whiteware industry of this material. There will also be a discussion on saggers led by Walter A. Hull, which is of general interest.

Chance to See Pottery Exhibition

The American Ceramic Society is fortunate in that its convention falls during the same week as that of the colossal annual exhibit of the pottery and whiteware manufacturers of America. This exhibit will occupy a number of floors in the Fort Pitt Hotel and will be open to the American Ceramic Society members and friends at all times. The exhibition this year will eclipse anything yet staged in this line by the potters of America.

On Monday evening, there will be a reception by the Pittsburgh local section which will welcome the national organization. There will also be a banquet in honor of the charter members of the American Ceramic Society. On Tuesday evening, a supper and entertainment in lieu of the old time section "Q" will be held. There is no entertainment on the program for Wednesday evening and delegates will find this time at their own disposal. For the ladies, a luncheon and theatre party will be given on Wednesday. An opportunity will also be provided for the fair sex to inspect the famous Heinz factory on Tuesday. Luncheon will be served at Heinz's at 1:00 p. m. which will be followed by the inspection trip.

Plant Visits February 15 and 16

Division meetings will close Wednesday afternoon. The balance of the week, Thursday and Friday, will be devoted to plant visits by those delegates who care to see how the Pittsburgh ceramic plants are operated. Trips are being arranged to Rochester and Beaver Falls, Pa.; to Arnold, Glassmere and Springdale, Pa.; to plants and other points

of interest within Pittsburgh; to Clairton and Donora, Pa. The above mentioned trips will be taken on Thursday, February 15. For Friday, the following trips are arranged: To East Liverpool, Ohio; to McKeesport and Hays, Pa, including a visit to the Harbison-Walker Refractories Co.; to E. Pittsburgh, Universal, and Derry, Pa. These trips are inexpensive costing only a few dollars each and will afford an opportunity to see in operation practically every kind of ceramic plant in addition to other manufacturing establishments.

It is necessary again to warn all those planning to attend the convention to be sure to get a railroad certificate upon purchase of their ticket to Pittsburgh. This is necessary if it is desired to secure reduced rates on the return trip. There are easily enough men attending these conventions to make it possible to get the reduction in rates if everyone would be thoughtful enough to obtain a certificate.

Because of the pottery exhibition, the Pittsburgh Hotels are sure to be crowded and it is well to send in reservations early so that accommodations may be assured. General sessions will be held in the William Penn Hotel and division meetings at the Fort Pitt Hotel. Other good hotels recommended by the society are Seventh Avenue Hotel and the Hotel Henry.



N. P. B. M. A. EXHIBITS AT GOOD ROADS SHOW

The Thirteenth American Good Roads Congress which was held at the Coliseum, Chicago, January 15 to 19, inclusive, set a record for itself in many respects. Attendance was unusually large and the number of exhibitors, which was over 200, exceeded past shows. The general atmosphere of the show indicated an exceedingly good outlook for those allied to the road building industry of the United States.

Many firms which heretofore had never exhibited at the National Good Roads Shows engaged space. As a result of the extraordinary demand for exhibition space buildings adjacent to the Coliseum had to be rented to take care of the overflow. Among the exhibitors were many firms well known to the clay industry as manufacturers of equipment used in the fabrication of ceramic wares. The National Paving Brick Manufacturers' Association maintained a booth where its representatives met many visitors and supplied information and literature of value to highway builders.

According to the reports from those in attendance, there seems to be a growing renewed interest in paving brick as a road surface. This sentiment is just beginning to manifest itself and is regarded as a forerunner of a period of greater use of paving brick.

Many new road regulations were adopted at the meetings of the American Road Builders' Association which met during the show. These all had to do with betterment and increased safety of highways. The program of this association contained many papers of interest to those connected with the road building industry.



TO MAKE 100,000,000 MORE BRICK IN 1923

Charles B. Siner, president of the Philadelphia Brick Manufacturers' Association in his report at the annual meeting of that association, stated that 100,000,000 more brick will be manufactured in Philadelphia this year than in 1922. Mr. Siner made the statement that during the last year two companies alone expended \$500,000 to increase their production. Production capacity of Philadelphia plants will be increased greatly Mr. Siner said, as 90 per cent. of the manufacturers are enlarging their output.

Philadelphia plants manufacture 1,000,000 brick a day and have invested in their plants approximately \$10,000,000. Manufacturers are looking for a 25 per cent. increase in demand for 1923.



Two Plants Which Are Taking Business from Clay Products. A Concrete Block and a Cement Brick Plant.

What About Synthetic Brick and Tile?

Ignorance on Part of Public of Vast Difference of Quality Enabled Over 800,000,000 Cement Brick and Tile to Be Produced—Some Brick Sold as High as \$35 Per M

Editor's Note.—The information contained in this article is the result of special investigations and visits to cement brick establishments by the editors of Brick and Clay Record. Figures regarding production of cement brick and block, number of establishments and so forth, were obtained from Building Supply News. Brick and Clay Record is indebted to Rock Products for the operation views here illustrated.

ACCORDING to a reliable informant, over 800,000,000 tile, face and common brick have had their places taken by substitute or synthetic products in 1922! This figure represents about ten per cent. of the total annual clay products tonnage manufactured in the United States into hollow tile, face and common brick. Moreover, the production of concrete brick increased over 200 per cent. in the last year!

Cement brick plants of 75,000 to 100,000 daily capacity are no longer a dream, but are being operated in direct competition with clay brick. Baltimore, Philadelphia, and Brooklyn have plants of large producing capacities turning out the

cement product. In fact, the cement brick man is showing no hesitancy or fear of competition from the older industry and plants have been established right in the hotbed of clay manufacturing establishments: for instance, Canton, Ohio.

Another plant is being operated at Aurora, Ill., which is about five miles from Cook County, Ill.—the world's largest producing center for common brick, a district which in 1916 produced 833,164,000 common brick. Aurora is also but a little distance from large face brick producing plants. Yet face brick is being manufactured out of cement at the Aurora plant.

Do Not Disregard Cement Brick

Clay manufacturers are prone to regard the cement brick competition too lightly, especially the face brick manufacturers. However, cement brick manufacturers are selling their product for church, school, residential buildings, and so forth, for as high as \$35 per 1,000 and making a profit reported to be enormous. The fact that cement brick can command such a price is in itself sufficient proof that it is a serious factor that must be contended with.

Very little capital is required to start a cement brick plant

How Concrete Brick Are Made. To the Right Is a View of the Store Room Where the Materials Are Kept. Below Is Part of the Machinery for Mixing the Concrete. The Raw Material Is Dumped Into a Hopper and Conveyed by Belt Into an Electrically Driven Mixing Machine.



A General View of the Machinery for Molding the Brick and Mixing the Materials Can Be Seen Here. The Concrete Is Placed Into the Molds and Tamped by the Men in the Foreground of the Picture. When Molded the Brick Are Set on the Pallets Shown at the Extreme Right.





This Cart Is Used to Carry the Pallets to and from the Dryers.



A View of a Steam Dryer in a Cement Brick Plant. The Brick Are Steamed from 24 to 36 Hours and Then Allowed to Dry.

and herein is the cause for the greatest alarm. A man with no experience who has but \$10,000 can establish a concrete brick plant, including real estate equipment and all; and \$35,000 will build and equip a very large and modern establishment. Very little machinery is required and a plant can be established almost anywhere.

A common way for making cement brick is as follows: A proportion of one part of cement to five or six parts of aggregate is found to make the best brick. The aggregate is very coarse torpedo sand, and for the manufacture of 1,000 brick 2½ barrels of cement to 1 2/3 yards of aggregate are required, or 46 cu. ft. of sand is used for every 7½ sacks of cement. Brick weigh between 5 and 5½ pounds each and are usually of standard size.

How Concrete Brick Are Made

At one plant the cement and sand is thrown into a hopper by one workman and then conveyed by a belt into a mixing machine driven by a ten h.p. electric motor. An operator at the mixing machine adds the necessary amount of water, which is just sufficient to make it of stiff plastic consistency. The mixture is dumped into a wheelbarrow and wheeled to the molder's bench. The molder then shovels the necessary amount of mixture into his mold and forms the brick, after which they are placed on a pallet and set in a drying room and then in the open air to cure. Where a plant has drying rooms, the brick are steamed for 24 to 36 hours and then permitted to cure for about ten days in the open. The brick are then ready for the market.

Where hand molding is done, as in the Shope process, one workman turns out approximately 3,200 brick per eight hour day, for which he is paid 55 cents an hour at the plant referred to. A bonus is paid for amounts produced over this quantity. Where face brick are produced a rate of 60 cents per hour is paid and approximately 1,400 are turned out by one man in a day.

Face Brick Made in All Colors and Varieties

The face brick are made similar to the common brick except that after the base is molded a colored mineral matter

Product	Number of Plants	Value of Product	Number of Employees	Total Production	Capitalization
Cement Block	6,500	\$100,000,000	26,000	500,000,000	\$65,000,000
Cement Brick	100	6,000,000	600	300,000,000	4,000,000

is sprinkled on the brick, depending upon what effect is desired. Such coloring materials as iron oxide, buff mortar colors, granite dust, and so forth, are used to produce the desired effect.

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What Happened on a Job Where the Contractor Attempted to Use Cement Brick. To Make the Wall Bond Properly It Was Necessary to Lay Real Brick in Every Other Course. The Difference Is Plainly Noticeable. The Dark Brick Are Cement and the Lighter Colored Are Clay.



Officers, Ex-Officers and Active Members in the C. B. M. A. There Are About 60 in the Picture. Look for Them at the Convention.

400 Expected at C. B. M. A. Meeting

Common Brick Manufacturers' Association to Demonstrate Value of Organization's Efforts and Work at Annual Convention February 5, 6 and 7

THAT VIRILE, progressive and fast growing organization, the Common Brick Manufacturers' Association of America will meet in its Fifth Annual Convention at Cleveland, Ohio, February 5, 6, and 7. Interest in the work of the Common Brick Manufacturers' Association during the past year has been so great that it is expected all attendance records will be broken at the Cleveland meeting.

The Hotel Winton with its splendid facilities will be the headquarters of the common brick men. David Olmsted, manager of the hotel, is bending every effort to make the stay of the delegates and their wives a most pleasant and comfortable one.

Cleveland, in addition to being admirably located geographically, is also the national headquarters of the Common Brick Manufacturers' Association and for this reason the local committee is making preparations to insure the heartiest kind of welcome for all those attending the meeting.

See C. B. M. A. Headquarters

Members of the Common Brick Manufacturers' Association will also have an opportunity to see for themselves the tremendous activities of the association in a way which would not be possible in any other city. The results of the association's work will be demonstrated in a way which will prove to the satisfaction of those attending, the value and worth of the association's activities. The association is doing excellent work, especially in its advertising campaign, and literature which has been gotten out recently shows that this advertising is having a telling effect on the public to which it is directed. Results of the Common Brick Manufacturers' Association's work are available to every common brick manufacturer in the country regardless of whether or not he is a member, if he wishes to take advantage of it. It will be brought out at the meeting how certain brick manufacturers have made the Common Brick Manufacturers' Association work for them to their profit. It is planned that the Cleveland meeting will show how the individual manufacturer can capitalize on the association's work. This one thing alone should make the convention worth the time and money of every common brick manufacturer in the country.

Sessions will begin promptly at 10 a. m. Monday, February

5. The association urges that manufacturers arrive in Cleveland, if possible, on Sunday, February 4 so that the meeting can be started promptly at the announced time. The program is a full one and in order to get the most out of it, it will take the entire time of all the sessions. Since the National Brick Manufacturers' Association will hold its annual convention the last half of the week, February 8, 9, and 10, the Common Brick Manufacturers' Association's sessions will close Wednesday afternoon. There will be two short sessions each of the three days of the convention starting at 10 a. m. and 2 p. m. The time not employed in sessions and business meetings will be devoted to visiting the association's offices, local brick plants, and points of interest in Cleveland.

The opening session will be addressed by Newton D. Baker, president of the Cleveland Chamber of Commerce, and former secretary of war. Charles H. Bryan, Detroit, president of the association, and other officers, will speak.

The program of this year's meeting is replete with interesting features which will be presented by men of known ability. The subject of advertising, which is the most important activity of the association, will be discussed by Charles C. Parlin, manager of the Commercial Research Department of the Curtis Publishing Co., publisher of the Saturday Evening Post, Country Gentleman, and the Ladies' Home Journal. Mr. Parlin demonstrated his profound knowledge of the subject on which he will speak, at the American Face Brick Association meeting held last December at West Baden. He will show how associations in other industries have not only stimulated demand for their products but how thru advertising associations have sold the output of an entire industry. This is practically the problem that the common brick manufacturers are confronted with. Mr. Parlin will leave no doubt in the minds of his hearers of the value of advertising.

Manufacturers' Side of Advertising

The manufacturers' side on the question of advertising will be discussed by Edward S. Jordan of the Jordan Motor Car Co. Mr. Jordan is a strong booster for advertising and credits advertising with being largely responsible for the success of his company.

G. H. Nichols, of the Nichols-Moore Co., will outline the plan of advertising of the association for the coming year.

Value of local advertising will be told by E. C. Roberts, advertising manager of the Cleveland Builders' Supply and Brick Company, who has been conducting a 100 per cent. campaign in the Cleveland district. This will be followed by a discussion on local advertising by leaders at the convention.

The report of the brick wall tests, conducted by the United States Bureau of Standards, will be made by A. R. Stange, of that bureau.

The report of Ralph P. Stoddard, secretary-manager, will be introduced in a unique manner in the form of a play, a feature that has never been attempted before either in this or any other trade association.

Harry W. Conway's cost accounting classes will be conducted during the convention.

Charles A. Bowen, assistant to the president, and traveling representative of the association, will review organization and its work. A full discussion of the association and its efforts will be held.

The development of the bricklayers' apprentice school in Cleveland, and what is being done in other cities along this line, will be told by W. P. Carroll, secretary, the Cleveland Building Trades Employers' Association.

Col. Leonard P. Ayres Will Speak

Colonel Leonard P. Ayres, of the Cleveland Trust Co., will talk to the brick men on the outlook for their industry. Mr. Ayres' opinion on the building situation and the business side of construction is authoritative and has been given much prominence in the national press.

At the St. Louis meeting last year, the blackboard talk of E. Elmo Martin proved so popular and well liked that it was decided to repeat this feature. Accordingly, Robert C. Griswold has been secured to give brick men a good common sense talk which will keep them mentally on their toes. Mr. Griswold taught salesmanship in the principal cities of this country and Europe, and is one of the leading exponents of the famous Sheldon School of Chicago.

Production of concrete brick has been increased 200 per cent. during the year which is just past, and other brick substitutes are rapidly incroaching on the markets of common brick. This subject of brick substitutes or synthetic brick will be discussed by the Consulting Architect of the association, D. Knickerbacker Boyd, of Philadelphia. Mr. Boyd will present some startling facts tending to show that brick substitutes must be reckoned with and a way found to combat their influence.

Time Devoted to Discussions

The time of the meetings not occupied by those speakers mentioned above will be devoted to discussions of problems which are of paramount interest to the brick manufacturers. Manufacturers are urged to present for discussion at this meeting any problems which they may have in merchandising or manufacturing. Certain subjects will be brought up for discussions, such as cost accounting, bricklayer apprenticeships, local organizations, and local advertising. Ample time will be reserved to talk about these questions.

Many unusual features have been provided for the benefit and entertainment of delegates and their guests. The latter also will provide something out of the unusual. For example, the Los Angeles delegation, headed by Lee S. Collins, Los Angeles Brick Co., will have a special car. The Los Angeles visitors come to Cleveland with the intention of taking the 1924 convention to their city. This would be the first time a national association convention would be held on the Pacific Coast, members believe.

The local committee is making arrangements for some good entertainment for the visiting brick men and their families.

Local brick manufacturers and officers of the association are anxious to make this convention a mark to shoot at in future years and are sparing no efforts to provide for the entertainment of their guests. The hotel management is also planning some excellent entertainment during convention week, a feature of which will be a dinner dance on Wednesday evening to which delegates of both the Common Brick Manufacturers' Association and National Brick Manufacturers' Association are invited.

Special Entertainment for Ladies

By all means bring your wives or sweethearts as special arrangements are being made for their entertainment while the men are discussing the weighty problems of the industry. There will be special teas, card parties and matinees, and for those who desire it, automobiles will be available for sight-seeing trips. On Tuesday night, February 6, the delegates will visit Keith's Palace Theatre, a large section of the lower floor having been reserved for them. There will also be an opportunity to hear grand opera with some of the greatest stars performing.

Every brick manufacturer when buying his ticket to Cleveland should not fail to take a certificate as that will insure reduced rates for the return trip. Take a certificate regardless of whether or not you intend to use it; it will help your fellow brick men who can take advantage of the reduced rates.

Because of the elaborate program, and the importance of the work to be taken up, indications now are that at least 400 delegates will attend. Reservations continue to come in for rooms, but an additional urge is made by association headquarters that every person expecting to attend this event send in room reservations now, since hotel accommodations will be more or less at a premium.

If you have not made your reservations it would be well to do so at once, either thru secretary Ralph P. Stoddard, 2121 Discount Bldg., Cleveland, or by writing direct to the Hotel Winton. Every common brick manufacturer in the country is cordially invited regardless of whether or not he is a member.

A rousing convention is expected, one that will break all attendance records is practically sure. Machinery and equipment manufacturers will have displays, two entire floors having been placed at their disposal for this purpose.



N. J. MINERS CHANGE OFFICERS

The New Jersey Clay Miners and Manufacturers' Association, Perth Amboy, N. J., held its annual meeting and dinner at the Hotel Pines, in the vicinity of the city, late in December. The organization departed from its usual custom of holding the event at the local Elks' Club. Despite a stormy evening, a good attendance was registered, and the affair went off with marked success. There was much to entertain the members and guests, and, not least of all, an enjoyable dinner. New York talent was secured to sing and dance for the benefit of those assembled.

For the first time since the formation of the organization, there was an election of officers, the incumbents heretofore retaining their respective positions. These very men, however, decided that there should be a change, and that "new blood" should run the association during the ensuing year. Accordingly, August Staudt, head of the Perth Amboy Tile Works, Inc., was elected president, to succeed L. H. McHose, of the McHose Clay Co., Perth Amboy, who has so ably held this berth in the past. Harry Crossman, South Amboy, clay miner, was selected as vice-president; Raphael Alcan, Tottenville, S. I., secretary, succeeding M. M. McHose, and Frederick Anness, Anness & Potter Fire Clay Co., Woodbridge, N. J., treasurer. The entertainment committee in charge of the annual meeting consisted of Fred C. Whitaker,

R. L. Clare and Frederick Anness, and great credit is due them for the fine evening.



CONNECTICUT MEN ELECT CLARK PREXY

The Connecticut Brick Manufacturers' Association, at a recent meeting, elected the following officers for 1923: President and treasurer, Robert O. Clark, East Berlin; vice-president, M. H. Donnelly, Berlin; secretary, C. W. King, Manchester. The governing board will consist of H. J. Cassel, Torrington; J. F. Reynolds, New Haven; V. M. Palmer, New Britain.

The membership includes 16 of the 26 manufacturing firms

of Connecticut, and the production represented is about three-quarters of the total for the state.

Reports presented showed that much of the stock on hand has already been sold, and were it not for the difficulty in making shipments stock piles would be greatly depleted. The volume of production was unusually large for the year. Prices were informally discussed and it was thought there might be an advance.

At the good homes exposition to be held at the State Arsenal early in April the brick manufacturers of Connecticut will have for an exhibit a completed brick bungalow. It will set forth the advantages of brick for all types of building construction.



Decree Sets Forth What Associations Can or Cannot Do

THE "DECREE" just handed down by the Department of Justice in the Government's case against the Gypsum Industries Association marks a long step in advance toward official understanding of the rights and purposes of legitimate business associations everywhere.

The decision, which was entered as a "Consent Decree," was in no sense a statement of accusation against the Gypsum Industries organization. In fact, the Gypsum producers aided, in every way at its command, the investigation conducted by the Department of Justice, and pledged in advance its desire and wish to conform the nature and work of its association so as to come strictly within the Government outline of legitimate activities for this sort of business co-operation.

The decision defines more specifically than has ever been done before just what sort of program a business association can safely undertake and carry out in its endeavors on behalf of the industry which it represents. These are epitomized below. Mr. John E. MacLeish, of the firm of Scott, Bancroft, Martin & MacLeish, who is himself the consulting attorney of the Gypsum Industries Association, declared to a representative of Building Supply News that the decision in this case is one that was openly invited and requested by that Association. In view of many conflicting opinions, the association has been anxious to have such definite word from the Government itself which would, as specifically as possible, point out the activities which might be conducted without danger of collision with the sweeping provisions of the Sherman Anti-Trust Law.

The Gypsum Industries Association desired to have definite authorization of the way in which it might be organized to most effectively promote the interests of its membership. In doing this, the Association admitted no previous violation of these laws, and the Government on its side, recognized this fact, and the Grand Jury which examined the case refused to return the indictment. As a result, the verdict handed down by the Government has been worked out as a constructive decree, thru the co-operation of all factors concerned. The purpose of this decree has been to state as clearly as might be, what is legitimate and permissible for a business organization. In other words, it seeks to aid by such an official statement, the work of restoring confidence and affording business interests a practical interpretation of the Government's attitude, by means of which their future activities might be satisfactorily determined.

What a Trade Association May Do,

In a detailed comment upon the decision in this case, United States Attorney William Hayward just defines what the Government considers a proper basis for the work of a trade association.

"The decree favors the organization of a non-profit-making corporation for the general welfare of the members, with its powers clearly defined in its charter, these powers being limited expressly to things that are clearly lawful and that will not cut corners in the effort to circumvent the Sherman law. These specific powers in this particular case are set forth in the decree and will have to be included in the charter or certificate of incorporation, so that that corporation will not have the legal right or power to engage in any activities outside of what its charter distinctly sets forth."

The acts permitted under the decree are:

To promote the use of gypsum products; to deal with engineering and trade problems pertinent to the industry; to carry on educational work thru schools, scientific bureaus and societies; to assist in handling transportation problems; to deal with improved methods of plant and mine operation; and to maintain a credit information bureau.

What Uncle Sam Forbids

Fourteen acts are prohibited, as follows:

"Agreeing to fix prices for gypsum products; maintaining uniform prices; agreeing to advance or decrease prices; agreeing to communicate with one another as to proposed advances or decreases in prices; agreeing to limit or control the output for manufacture or the manufacture; agreeing as to distribution of territory in favor of or against any mail order house, co-operative buying association or dealer; agreeing to blacklist; agreeing to fix middleman's discounts to consumer; agreeing to adopt or follow any published price list; agreeing to enforce arbitrary excess freight rates; agreeing that certain manufacturers make a gypsum product of a definite composition and that all others desist from making it, and aiding others to do all or any of the matters herein set forth and enjoined and restrained herein."

"The formulation of the decree developed from many conferences between Government attorneys has been approved by the Attorney General. For the first time in the history of the Sherman law there is clearly set forth a code of principles governing trade associations and providing what they are prohibited from doing, with certain provisions in this specific case for what they may be permitted to do," said Mr. Hayward.

Federal Judge Knox of the United States District Court for the Southern District of New York, who signed the decree on January 4, intimated that the plan was sound and might work out to the advantage of all.

"We have been trying to curb twentieth century trusts with seventeenth century methods," he said. "The present method wears out both judges and juries."

Business Briefs and Trend

NO STRIKE IN CENTRAL COAL FIELDS, OPERATORS SAY

As the time draws nearer for negotiating a wage scale for the coal miners in the central competitive field, which includes Indiana, Ohio, Illinois and Western Pennsylvania, there is a feeling in the industry, especially in Indiana, that there will be no strike this year. This feeling has been enhanced just recently by statements of officials of the Indiana Bituminous Coal Operators' Association. Phil H. Penna, secretary of the organization, is authority for the statement that "there has not been the remotest or slightest danger of a coal strike next summer." His positive statement, however, would not have had the unanimous approval of the Hoosier operators a month ago, for those in Indianapolis particularly were equally as positive that under no circumstances could a suspension be avoided. The recent conference in Chicago, however, in the opinions of these operators, has clarified the situation. It is the general feeling in Indianapolis that regardless of what other fields do, the Indiana industry will be able to reach an agreement before the expiration of present contracts. If this is done, and even if other fields strike, there is little danger of any fuel shortage next summer or next fall among the users of steam coal. The Indiana field and the non-union fields could mine a considerable part of the tonnage necessary, it is said. The operators are meeting with the full support of the international headquarters' officials of the United Mine Workers in arranging the necessary conferences for adjudication of difficulties before the present contracts end.

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ASKS STATES TO SUPPORT TRADE SCHOOLS

Legislatures of seven states, Illinois, Wisconsin, Iowa, Michigan, Minnesota and the Dakotas will be asked by contractors to set aside educational funds for building trade schools. It is being realized that the system of training young men by apprentices is obsolete and being hampered by union restrictions. Since skilled mechanics are becoming more and more scarce, some other means must be employed to train them.

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SOUTH TO SPEND \$86,436,650 ON ROADS

During the first eight months of 1922 the 16 Southern States sold 343 bond issues for good roads totaling \$86,436,650, according to the Texas State Highway Commission. Texas led the South during the period with bond issues totaling \$25,436,780, or nearly one-third of the amount for the entire territory.

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LUMBER OUTPUT DROPS IN 1921

Total lumber production in 1921 in the United States totalled 26,991,798,000 feet, a decrease of nearly 10 per cent. as compared with the 1920 cut and 21 per cent. as compared with the 1919 output, according to preliminary statistics compiled by the Census Bureau in cooperation with the Forest Service.

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DAUGHERTY ON OPEN SHOP AND ASSOCIATIONS

A bulletin recently received by Brick and Clay Record states that "Attorney General Daugherty's recent ruling in reference to agreements and contracts having for their pur-

pose the maintenance of an 'open-shop' labor policy being held to contravene the conspiracy clauses of the Clayton Act, should not be confused with a purely 'open-shop' labor policy of associations, wherein the sale, delivery or price fixing of material does not enter into any agreements made between members of such associations."

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BUILDING IN LAST FOUR YEARS

The statistical analysis of building expenditures in important cities in the United States for the years 1919-1922, inclusive, as prepared by D. C. McCord, building inspector of Dallas, Tex., follows:

Rank in Volume	City	Rank in Pop.	Population	Volume in Building	Per Capita in Volume	Rank Per Capita
1	New York....	1	5,621,151	\$1,523,171,229	\$270.95	6
2	Chicago	2	2,701,212	501,526,820	185.70	11
3	Detroit	4	993,739	303,219,548	325.50	3
4	Los Angeles...	10	575,480	283,241,795	492.60	1
5	Philadelphia ..	3	1,823,158	269,584,564	147.80	16
6	Baltimore	8	733,826	122,188,030	166.70	13
7	Boston	7	747,923	120,823,539	161.70	14
8	San Francisco..	11	508,410	106,696,594	210.30	9
9	Cleveland	5	796,836	93,958,457	118.00	18
10	Pittsburgh	9	588,193	87,217,307	148.30	15
11	Indianapolis ..	20	314,194	85,156,306	271.10	5
12	Milwaukee	13	457,147	81,387,672	178.10	12
13	St. Louis	6	773,000	77,732,475	100.50	19
14	Seattle	19	315,652	75,101,440	238.40	7
15	Minneapolis ...	18	380,498	71,277,730	187.50	10
16	Buffalo	12	505,875	68,739,120	136.10	17
17	Kansas City...	21	305,816	64,606,300	211.80	8
18	Dallas	42	159,976	60,513,742	378.25	2
19	Atlanta	33	200,616	54,244,136	271.20	4
20	New Orleans...	17	387,408	35,898,757	90.20	20

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LUMBER OFFERING \$2,000 IN PRIZES

\$2,000 in cash prizes are being offered by the National Lumber Manufacturers' Association to those who contrive the best method, newest machine or device which in practical application will result in an appreciable saving of labor, time or expense in the lumber industry. This policy of the lumber industry has led to some very important developments.

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SMALL HOUSES CAN USE 8-INCH WALLS

That eight-inch brick walls can be used in one and two-family houses having walls under 30 feet high was one of the conclusions reached in a recent extensive investigation of building codes by the Building Code Committee of the Department of Commerce. This conclusion was reached as a result of careful analysis of building codes, of a series of fire tests conducted at the Bureau of Standards, and of a series of strength tests conducted at the same institution. It is expected that this recommendation will result in a substantial saving in construction cost, as the present building codes usually require thicker walls than this. Exception must, of course, be made in regions liable to earthquake shock.

Beginning in July, 1921, the Building Code Committee of the Department of Commerce has been studying and comparing building codes from all over the country as applied to small houses. The Bureau of Standards has been co-operating closely with them and has furnished much of the experimental work on which the findings of the committee are based.

Its work is now completed and is embodied in a publication entitled "Recommended Minimum Requirements for Small Dwelling Construction. This publication has now gone to press and will be ready about February 1. It can then be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents a copy.

The book begins with a discussion of the origin of the committee and its methods of working. Then some of the more important of its findings are discussed. This is followed by a standard building code which covers the minimum requirements. It is written in such form that it may be adopted without change in wording either as a building code or as an amendment to existing codes. It is intended to serve as a guide and a standard in the formation of local building codes.

The latter part of the book is taken up with an extensive detailed discussion of the recommendations made and the data on which they are based. It is freely illustrated and contains much information of value to architects and builders.



AMERICA 30,000 BRICKLAYERS SHORT

There is a shortage of more than 30,000 bricklayers in the United States and Canada, according to a statement made December 13 by Walter W. Wise, chairman of the publicity committee of the Mason Contractors Association, representing about 46 cities thruout the United States, which held its international convention in St. Louis December 13 and 14. The headquarters was the Statler Hotel.

"The war handicapped our industries exceedingly," Wise said. "Our convention considered a plan to have apprentice schools for bricklaying established thruout the country. We desire a school in every large city. Such institutions have already been established and proven successful in Cleveland, Indianapolis and a few other cities. Beginners learn much more in such schools than when put out on buildings.

"The shortage in bricklayers was brought about thru the war. Many men went into the army and some never returned.

The older men accepted positions in factories doing war work and discovered they were able to earn more money thru steady year around work than at the higher wages paid bricklayers for only temporary work. So they failed to return to their old trade when the war ceased."

Conventions in Prospect

January 23, 24 and 25—Canadian National Clay Products Association and Western Ontario Clayworkers' Association, Hotel Connaught, Hamilton, Ont.

January 24 and 25—Wisconsin Clay Manufacturers' Association, Republican House, Milwaukee, Wis.

January 25 and 26—Hollow Building Tile Association, Drake Hotel, Chicago, Ill.

January 29, 30 and 31—Ontario Farm Drainage Association, Chamber of Commerce, Chatham, Ontario.

February 5, 6 and 7—Common Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 8, 9 and 10—National Brick Manufacturers' Association, Hotel Winton, Cleveland, Ohio.

February 12, 13, 14, 15, 16 and 17—American Ceramic Society, William Penn Hotel, Pittsburgh, Pa.

February—Iowa Clay Products Manufacturers' Association, Des Moines, Ia. (Date Not Set.)



The Building Situation

THE YEAR 1922 broke all records for the volume of construction activity, according to The F. W. Dodge Co. December building contracts in the 27 Northeastern States (including about three-fourths of the total construction in the country) amounted to \$215,213,000. Altho this was 12 per cent. less than the November figure, it was eight per cent. greater than that of December, 1921.

The December figure brought the year's total for these 27 states up to \$3,345,950,000 (which would indicate about 4½ billions for the entire country). This was an increase of 42 per cent. over 1921. Had such an enormous increase been predicted a year ago, it would have been considered impossible.

Analysis of the year's record shows the following important items: Residential Buildings to the amount of \$1,341,009,000, or 40 per cent. of the year's total; Public Works and Utilities, \$562,066,000, or 17 per cent.; Business Buildings, \$496,145,000, or 15 per cent.; Industrial Buildings, \$325,100,000, or ten per cent., and Educational Buildings, \$303,272,000, or nine per cent.

Residential building, the dominant factor of the year's program, increased 53 per cent. over the previous year. Contracts in this class called for the construction of over 310 million square feet of new floor space, enough new housing to accommodate nearly 200,000 families.

Forecast for 1923

While residential construction was the outstanding feature of the year, the investment in structures of all other kinds was 36 per cent. greater than in 1921, showing a marked trend toward a normally proportioned building program.

The revival has been somewhat uneven as to class and

locality. Residential construction and certain other classes that usually accompany it, such as religious and educational buildings, have led the way. The revival has proceeded further in the Eastern states than in the Middle West. It has been accompanied by rising prices and wages, and by a shortage of facilities to complete the program.

With the probable increase in general prosperity in 1923 there is likely to be an increased demand for business and industrial buildings, in which considerable improvement was noted last year. With the demands for money, men, and materials for these classes of structures and for general business and industrial expansion, there is likely to be a restriction of the residential construction program. It seems unlikely that increases in industrial and mercantile buildings will make up for the decline that is likely to occur in residential construction. Consequently, altho 1923 should be a year of enormous activity compared with years previous to 1922, it does not seem probable that it will exceed, or even equal, the high record year just past. The Middle West seems more likely to equal last year's record than the eastern sections.

New England

The New Year has opened up bright prospects in the construction industry in New England, and every branch of the trade discusses the situation with extreme optimism. It is confidently expected that 1923 will duplicate the past year, which established new high building records in practically every important city in that district; some interests prominent in the industry go so far as to prophesy that the coming 12 months will exceed the 1922 figures. Current contract awards are running close to \$2,500,000 a week.

(Now turn to page 154)

Burning In Updraft Furnace Kilns

Another Splendid Article in the Popular Series of Burning in Updraft Kilns

Elias Petts

WE TAKE IT FOR GRANTED that the brick have been properly set as explained in a previous article of this series.

There are a number of different kinds of kilns of this type—some have only one furnace to three eyes; some have two eyes to each furnace, and still others have only one eye to each furnace.

It is not our purpose to enter into a discussion of the merits of any of these, except to say that where there is more than one eye to a furnace, there must be some method of controlling the heat in each eye, because it is obvious that if a furnace has two or three eyes, and one of these becomes hotter than the other, one cannot diminish the firing on the furnace without cooling all the arches which are being fed by that particular furnace; hence the necessity of having some method of control in each eye.

Before You Start the Fires

We shall not attempt at this time to discuss the different methods of control, but simply mention it here so that hereafter when the control of heat in the arches is referred to, you will know it refers to your method of control.

As in all other methods of burning, there are several things to consider before starting your fires. One of these is how much fire will your clay stand, or in other words, how fast can you advance the firing without damage to the brick. In what condition have the brick been placed in the kiln? Have they been set very damp, or perfectly dry, and in either case, will the clay stand forcing, or must you go very slowly to insure a kiln of good brick when you have finished burning? Then again, what kind of fuel are you going to use, and what is the best way to handle each of these fuels to get the best results?

Before starting your fires, open up your platting by taking out every other brick in every fourth row, as shown in sketch. These brick are to be closed down as fast as the water-smoke leaves and the top gets hot, with the exception of three or four rows in the center of kiln which should

be left open until fire shows in them; and then when all are down, take a spade and tighten the platting all over and cover any cracks thus made with brick.

Reduce Air Spaces for Wood Firing

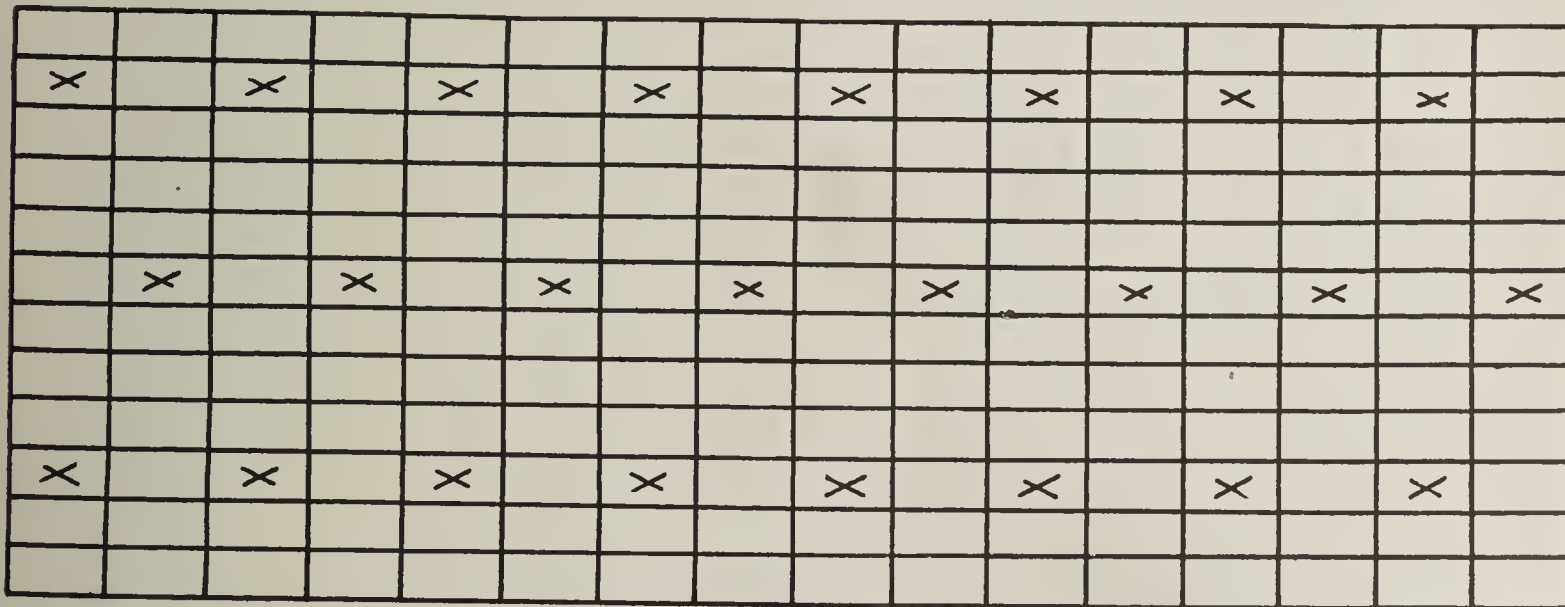
If you are using wood for burning thruout, you will require very little grate surface, as the draft is so much stronger with wood. The air space in your grates should be smaller for wood than for coal, or the hot coals from the wood will fall thru into the ash pit, and the heat from same would be wasted and at the same time would heat the under side of the grates, causing them to warp.

Start your fires slowly at first, unless you know your ware cannot be damaged by rapid heating, in which case you can start with a heavier fire and after 12 hours of firing you can keep a good heat, as by this time the water-smoke should be coming off all over the kiln. Keep a good heat with the doors open until the water-smoke is all gone and the platting sizzling hot all over; then close the doors and keep the kiln as hot as the arches will stand without settling until the fires show all over the top.

Settling the Kiln

The openings in the platting having been closed, with the exception of the four middle rows—and these are to be closed as fast as the fire shows in them—your kiln should now begin to settle, and if not, the heat should be increased until it does settle, and this heat should be maintained until you have the settle necessary to give you a good burn.

If you find during the settling period that one arch is settling faster than another, and you are using a single arch to a furnace, lighten the firing on this arch until the rest of the kiln about catches up with it, but do not lighten the firing enough to entirely stop the settling, as it may be difficult to start it again. If you have a multiple of arches to each furnace, you will have to use your method of control to hold back the arch that is going too fast.



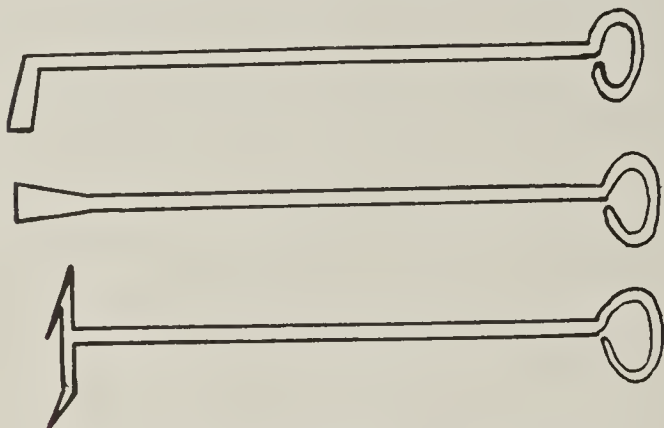
Drawing of the Platting of an Updraft Furnace Kiln. The Brick Marked with a Cross Are to Be Removed Before the Fires Are Started.

Keep all of the platting tight at all times, using a spade as before mentioned.

When to Brick Up Doors

When the burn is completed, and your furnaces are cooled to a dark or cherry red color, brick up the doors and ash pits, daubing them all over, with the exception of a 2 x 3 inch opening at bottom of ash pit, which should be left open to prevent the kiln from cooling at top, as sometimes happens.

If you are located in the South and use pitch pine for burning, do not use it until the water-smoke is all gone and the platting is very hot, as the lamp black from this character of wood is the best fireproof paint I ever saw and will choke your kiln quicker than the soot from any coal ever mined. Use field pine or any kind of wood that will burn without a black smoke. I have seen kilns choked so



Three Implements Which the Fireman Will Find Useful.

tightly with pitch pine that a white heat under the platting was necessary to burn it out. The foregoing relates to wood as fuel thruout the burning.

When Water-Smoking with Wood

In some plants, wood or coke or both are used for water-smoking, and the kiln is then finished with bituminous coal. Where this method is followed, and if, as is the case with some plants, the bituminous coal makes much soot, care must be taken to see that the whole top of kiln is hot enough to sizzle when water is dropped on it. If, however, you are using a bituminous coal that makes very little soot, you need not be so careful about getting the top so hot before using the bituminous coal, as there are a number of coals that can be used from the start to the finish, if a little care is used in water-smoking. If you use coal of this character, the best method of firing is as follows:

As soon as the grates are covered with a good bed of live coals, put the fresh coal just inside the door where it will coke in a short time; then with an iron hoe or scraper, push this coal to the back of the grates, and put fresh coal inside the door again. The object in doing this is to let the gases from the fresh coal pass over the hot fire at back of furnace where the smoke will be partly consumed, and thereby cut down the amount of soot that might settle in the top of kiln and cause trouble later.

Closing the Platting

If the clay will stand forcing, you may keep the furnaces at a good bright heat, but with the doors open and until, as before explained, the top is hot enough to sizzle when water is dropped on it; and do not close the doors until the kiln is in this shape, because if you do, you are in danger of getting what is known as a down-draft on an up-draft kiln.

As the kiln dries off, close down the platting in the dry places and see that same is tight; this will force the heat, which might otherwise be wasted, to those parts that are not yet dry. When the water-smoke is gone and the kiln

hot as described, have the furnaces clean and hot; close the doors and raise the heat as high as your clay will permit without settling. Keep the fires clean and bright, and do not fire too heavily or you will cause the coal to coke on top of the fire, and this does not give good results and will necessitate the use of a poker to break up the fire in order to get it clear again. If properly fired, the coal will all burn up, and for this reason the fuel must be scattered lightly all over the grate; this keeps the fire level, and the fireman can tell at a glance upon opening the door just the condition of his fire. The only exception to this scattering of the coal is when on looking into the furnace the fireman sees a bare spot on the grates caused by not getting the coal evenly distributed on the fire before, he may drop a small shovelful on this bare spot. Again, when cleaning fires, it will be necessary to throw in more coal until the fire bed is properly established again.

When to Begin Settling

Do not fire with a scoop shovel, but use a dirt shovel instead.

Keep up the heat to near the settling point, but do not settle until the fire shows all over the top; then get the arches up to a settling heat, but not going too rapidly at first until the whole kiln is going together. If you go too rapidly at first, the heads and quarters of the kiln will run away from the center and will make the center hard to get. If, however, you go carefully at this stage, you will have no trouble in getting a perfectly level settle and a good burn.

Just a word about burning this type of kiln with oil. The writer is free to confess that he has not had a great amount of experience with oil as fuel, but what I have had has convinced me that it is the ideal fuel for this kiln if the price of oil is not too high.

We have burned with oil kiln after kiln of dry pressed brick, and every one of them as level as a floor. We used one burner to a furnace, and each furnace had two arches.

Keep Top of Kiln Tight

These kilns were built to burn coal and were later changed to oil, and the burning of the kiln was under absolute control of the man in charge, because if one arch became hotter than the other he had only to turn the burner slightly toward the cooler arch, and the heat in each arch would soon become equal.

In closing this article, let me say that too much stress cannot be laid upon keeping the top of the kiln tight at all times after it has become hot. There is often a tendency on the part of the night crew to let any loose places that appear during the night wait until daylight before closing them. No good burner will do this, for altho the fire may work in the loose places so strong and the flame run out so high that the local fire department may make a run, thinking the plant is burning down, it will not settle the kiln or burn the brick, and is only a waste of fuel.

One reason some kilns have so many salmon brick on top is that the top is so loose that the heat escapes from the top courses faster than it can be forced up to these same courses. In other words, if you would burn hard close to the top, keep the top of the kiln as tight as possible.

The sketch shows a section of the platting. Brick marked "X" are to be removed as before mentioned; sketch also shows the usual tools for cleaning fires, to which may be added an iron hoe or scraper.

* * *

FORM COMPANY IN KANSAS CITY, MO.

The Coates Brick & Tile Co. has been chartered with a capital of \$15,000, it is reported. T. A. Frank Jones, 1109 Gloyd Bldg., Kansas City, Mo., is interested in the company.

Make Your Reservations for the Common Brick Meeting Now

Accounting Simplified

G. W. Greenwood

Treasurer, United Refractories Co., Dunbar, Pa.

Chapter III—CLOSING THE OPERATING REGISTER

AFTER THE LAST SALE for the month has been written up, the last deposit entered, the last check recorded, the last invoice for material or for services has been inserted make pencil totals up to the close. Suppose we have the following pencil totals at the close of February:

GENERAL LEDGER	6,331.36	3,861.25
SALES		15,274.83
ACCOUNTS RECEIVABLE	14,982.19	13,872.94
BANK	17,726.12	17,912.68
CASH	1,130.11	1,102.86
ACCOUNTS PAYABLE	16,217.38	16,113.20
EXPENSES	12,137.76	387.16

This does not mean that the figures already used for the purpose of illustration should give these totals. It means that after the remaining sales have been recorded, their total is \$15,274.83; and that after all deposits and checks have been written up, the totals of the bank columns are those shown, and so forth.

We first, of course, check our results by adding all the debits and all the credits to see if the totals agree. We then strike balances on scrap paper, or by means of a computing machine if one is available, and in the descriptive spaces immediately following the last entry, we write the following, the figures being inserted in the "GENERAL LEDGER" columns (see figures 6 and 7):

Closing Entries:

Sales	15,274.83
Accounts Receivable Control ..	1,109.25
Bank	186.56
Cash	27.25
Accounts Payable Control	104.18
Expenses	11,750.60

The entries need not be made in consecutive order.

Now make totals of the "GENERAL LEDGER" columns to this point and see if they are the same. If not, there has been an error, possibly in striking some of the balances.

Recapitulation of Expenses 1923											
		January		February		March					
a	Superintendence			350.00							
b	Labor			876.23							
c	Raw Material			678.11							
f	Fuel			653.86							
g	Supplies			472.91							
h	Tools			82.03							
e	Live Stock Supplies			269.10							
p	Fire Insurance			-							
r	Repairs			132.75							
z	Miscellaneous			80.2							
	Total			1140.41							
m	Office Salaries			75.00							
n	" " Supplies			24.37							
s	Selling Expenses			248.40							
t	Telephone & Telegraph			50.18							
y	Rent of Company House			84.00 *							
i	Interest			38.41							
d	Discount			3.17 *							
	Total			349.19							
	Gross Total			11753.60							
	Sales			15274.83							

Figure 5. The Two Items of Divisions y and d Are Credits and Should Be Written in Red. They Are Indicated by Asterisks. This Must Be Remembered When Arriving at the Total \$349.19.

others there may be two or three postings a month; to most of the others there will be no entries at all during the month. It is evident that posting the general ledger for a month and taking off the trial balance is quite a simple feat; that chances of error are greatly reduced, and that any error may be readily found. As the president of one company expressed it, "The entire system is so simple that there is really nothing to keeping our books any more."

Posting in Accounts Receivable Ledger

The Accounts Receivable Ledger is posted similarly, using the center line as a checking column. But the first page of this ledger is entitled "Accounts Receivable Control," and the closing entry is posted to this account. Then when all postings have been made, the ledger should balance since the same amount has been posted to each side, making this a self-balancing ledger. This control account is just the reverse of the account in the General Ledger with the same heading, thus affording a means of verification. For instance, in some cases these two ledgers are handled by

different people, and the fact that the ledger balances and that the control account corresponds to that of the General Ledger is fairly satisfactory evidence to the one handling the Accounts Receivable Ledger that his work is externally correct. Of course there may be two internal errors which balance each other; a method of guarding against this source of error will be given later. Originally, the writer did not use self-balancing subsidiary ledgers, so that they were always out of balance by the amount of the control account in the General Ledger; sometimes even more so! The use of the self-balancing ledger has proven in all cases more satisfactory.

All that has been said concerning the Accounts Receivable Ledger applies also to the Accounts Payable Ledger.

In the case here used for illustration, all postings to the three ledgers are from this one source, and this has been found to have many advantages in itself. In another section, however, will be discussed the use and advantages of a Sales Book, or other methods of handling sales without writing them up in this book.

Chapter IV—RECAPITULATION OF EXPENSES

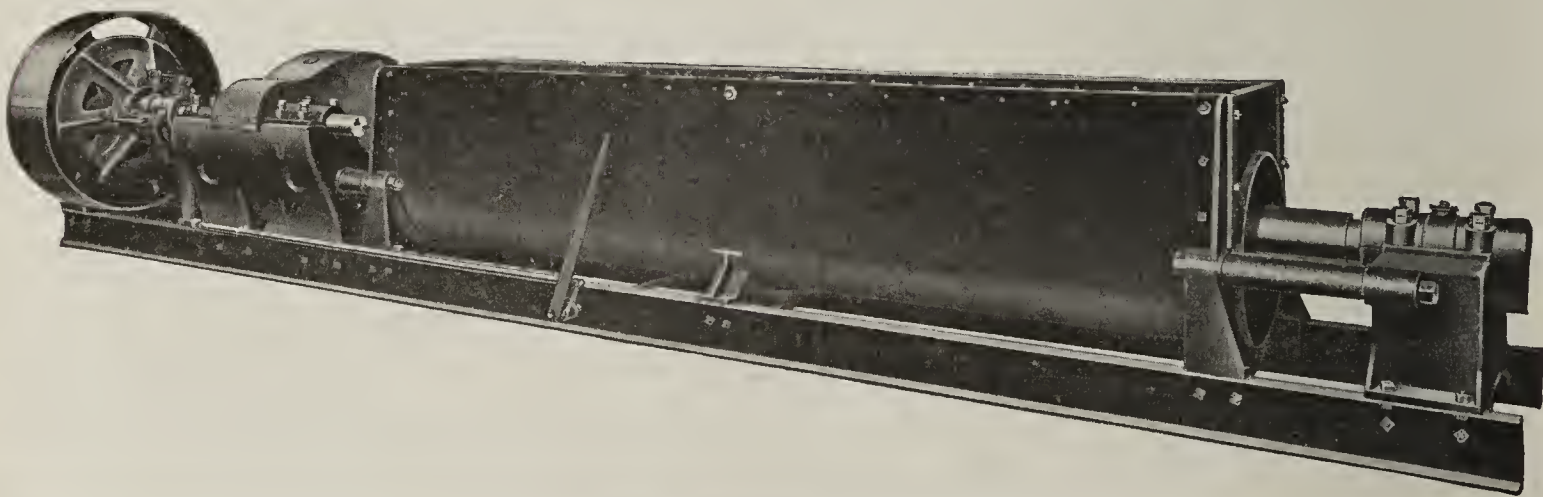
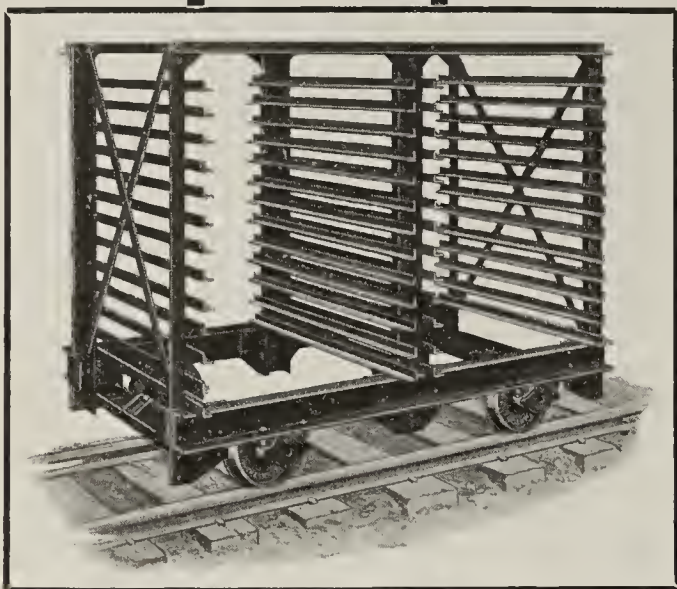
We have seen that we have entered all expense items in either the debit or the credit column of the Operating Register, and furthermore that only the net difference was

carried to the General Ledger. We now take a summary sheet, shown in figure 5, "Recapitulation of Expenses," and write down the various items of expense in the descriptive

February 1923, page 4											
Bank			Cash		Accounts Payable		Expenses				
1772612	1791268	113011	110286	1621738	1611320	1213776	38716				
18656			2725		10418						
							1175060				
1791268	1791268	113011	113011	1621738	1621738	1213776	1213776				

Figure 7.

1923 Will Be A Year



CLAY PRODUCTS manufacturers and extensive thought. Jobs of various occupations as will require the least

This means you are going to pay a higher price for a higher payroll, you will be obliged to secure minimum quality and quantity of wear parts and waste, and with least cost for a complete line of clayworking equipment will

Our engineering staff has had years of experience confronting you as a manufacturer. We will gladly and submit them to us direct or to our agents (Rooms 210 and 212.)

INTERNATIONAL
NEW YORK DAY

ENGINEERS
and
DESIGNERS
of
COMPLETE
CLAY WORKING
PLANTS

International

of Labor Shortage

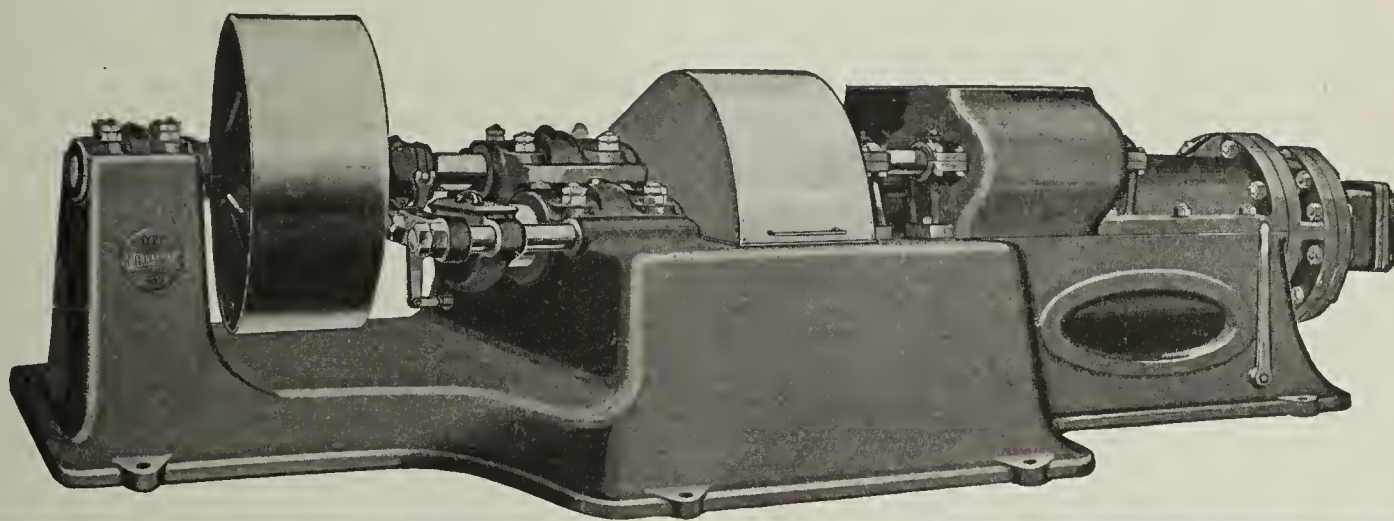
ould give the labor supply matter serious
be plentiful, and men will choose such
unt of manual labor and the highest pay.

er rate for your labor and to compensate
o use equipment that wil produce max-
an with the smallest amount of breakage
er and repairs. There is where our new
p you.

experience in overcoming every problem
y your problems; make a note of each one
engineers at the Cleveland Convention,

CLAY MACHINERY CO.
N-OHIO PITTSBURGH

Auger Machines
Pug Mills
Dry Pans
Crushers
Disintegrators
Cutting Tables
Berg Dry Press
Dryer - Waste Heat
Dryer - Metallic Radiation
Dryer - Producer Gas
Dryer Cars
Represses
Clay Feeders
Screens
Elevators
Conveyors
Hoists
Dump Cars
Transfer Cars
Turntables
Continuous Kilns
Periodic Kilns
Roofing Tile Machinery
Trackage
Transmission
Pottery Machinery



**EQUIPMENT *for* MANUFACTURING
CLAY PRODUCTS—POTTERY
and GENERAL WARE**

space, as shown, using the left-hand column to insert the symbol or letter, thus:

a	Superintendence
b	Labor
c	Raw Material
f	Fuel
g	Supplies
h	Tools
l	Live Stock Supplies
p	Fire Insurance
r	Repairs
z	Miscellaneous
	Total
m	Office Salaries
n	Office Expense
s	Selling Expense
t	Telephone and Telegraph
y	Rent of Company Houses
d	Discount
i	Interest

Total Gross Total

Of course the classifications themselves, and the number of them are matters for each company to decide for itself. A brick manufacturer will wish to cover several additional items of expense, while many firms do not use so great an array of expense accounts.

Neither is it necessary to follow the grouping here suggested.

The sheet is the same size as the Operating Register Sheet, and fits the same binder. To distinguish these recapitulation sheets from those of the Operating Register, they should be of different tints: one white, the other, buff, for example. The recapitulation sheet illustrated shows nine columns on the left hand side, and on the right (not illustrated) there are 12 columns. There is no significance in these numbers of columns, it was simply a case of filling the sheet.

In some cases they will not all be needed during a year, in other cases it is necessary to use cut sheets such as have already been described in connection with the Operating Register, to meet a year's requirements.

Recapitulating Expense Column

It is a question as to whether or not every fifth line should be heavy, there are advantages as well as disadvantages in this, with a balance in favor of not making the fifth line heavy, but in favor of making all lines uniform. However, this is entirely a matter of choice.

Let us now head the columns JANUARY, FEBRUARY, MARCH, and so forth. Next, make a recapitulation of the Expense columns, using an adding machine or scrap paper, setting down the net amount of each (total debits less total credits) opposite the proper name and symbol. If the credits exceed the debits, set down the amount in red ink. For instance, Rent of Company Houses as a rule would appear in red, also the Discount for Prepayment of Invoices when the amount received exceeds that allowed purchasers.

Suppose we find the following totals as a result of recapitulating the net amount charged to Expenses for February, two red ink items being indicated by asterisks:

a	Superintendence	\$ 350.00
b	Labor	8,761.23
c	Raw Material	672.11
f	Fuel	653.86
g	Supplies	472.91
h	Tools	82.03
l	Live Stock Supplies	269.10
p	Fire Insurance (no entry)	
r	Repairs	132.15
z	Miscellaneous	8.02
	Total	<u>\$11,401.41</u>

m	Office Salaries	\$ 75.00
n	Office Supplies	24.37
s	Selling Expenses	248.40
t	Telephone and Telegraph	50.18
y	Rent of Company Houses	84.00*
i	Interest	38.41
d	Discount	3.17*

Total\$ 349.19

The gross total, \$11,750.60, must of course agree with the net charge to Expenses in the General Ledger for the month.

As has been stated, nothing in this discussion is intended as advice concerning the number of accounts so carried, their names or their arrangements. So far as the system is concerned, these points are immaterial.

Now here is another little feature which has been found of use: Somewhere on this same sheet, either above or below this list, set down the sales for the month, in this case, \$15,274.83. This does not mean that the difference between these two amounts is profit but it does show that this amount has, as a rule, been put into more liquid shape even if most of it has come from the sale of stock from the stock sheds.

System Can Be Installed Any Time

The following month the corresponding items are entered for March, and so on thruout the year. Then totals are made for the year, or for the portion of the year since the system was installed. Where a fiscal year is used other than the calendar year, the first month of the fiscal year should be placed in the first column.

And as previously stated, it is not necessary to install the system at the beginning of a year, but it may be even better to begin at some other time.

After the system has been in use for some time, one can trace the monthly expenditures for any item, or the total of all items, month by month and year by year. He can compare the charge for Fuel for March, for instance, with the previous charge for February, or for the previous March. He can easily add the current total for the year up to that point. If he wishes, he can use every other column for totals of each item for the year up to that point, or use moving annual averages or totals; this last addition has never been found by the writer to be desired by anyone, but it shows the possibilities of the system.

Some of the Advantages

This system sets these items forth more clearly than if they were buried in a ledger; this summary can be taken

This is the second installment of a number of articles dealing with a system of accounting which supplies all information desired with the least expenditure of time, labor and money. Watch for these articles in every issue of Brick and Clay Record. It will be well to save all the articles so that your files may be complete.

off more quickly than such items could be posted in a ledger. If one carried a ledger account for each of these expenses it would increase very decidedly the size of the General Ledger. It would increase the work of taking off trial balances.

This is not a cost system, it is simply a distribution of expenses, but it paves the way for an up-to-date cost system as well as for a more detailed distribution of expenses whenever this is desired.

No attempt has been made to include physical inventories, or deferred charges, or accrued liabilities. This phase will be taken up later, for the consideration of those who desire

to go so far. Many, however, will be willing to stop at this point, satisfied with the information already afforded by this sheet. If so, they have already gone far. In fact, one might as well in any case go no farther than this for the first few months after installing this system.

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STULL TO DEVELOP GEORGIA CLAYS

R. T. Stull, chief ceramist of the United States Bureau of Mines, has been granted a leave of absence by the government and is now devoting his full time to the work of developing the clay deposits in Georgia. Mr. Stull has been engaged by the Central of Georgia Railway for this purpose and will act as assistant general industrial agent for the railroad. He took up his new duties with the railroad January 15. Under Mr. Stull's guidance great things can be expected from the Georgia deposits. Several attempts have been made by others on previous occasions to develop the clay and bauxite deposits but these attempts failed because of a lack of expert technical experience on the part of those sponsoring the work. Mr. Stull's extensive and varied experience in the clay industry fits him for this work which he has undertaken and practically insures its success.

Experiments made by the Central of Georgia have determined the extent of Georgia's clay belt to be approximately 150 miles long and from 25 to 50 miles wide. In these deposits are included bauxite refractory clays, a high grade of kaolin, and the more ordinary types of clay. The kaolins, especially, have been of interest and experiments and research work have determined their availability for use in pottery, porcelain, floor and wall tiles, and sanitary ware. As far as experiments on Georgia clays have now gone there is reason for the greatest optimism regarding their value. Mr. Stull's work should establish definitely the purposes for which the clays can be used.

Mr. Stull has been connected with the United States Bureau

of Mines for a number of years and has been superintendent of the Bureau's ceramic station at Columbus, Ohio. He recently performed notable service in the industry as director of the research work which was promoted by four of the



R. T. STULL

largest associations in the clay industry. He is also well known as a prominent member of the American Ceramic Society of which association he has been president.



Ohio Drain Tile Men Expect Good 1923

THE ANNUAL MEETING of the Ohio Drain Tile Association was held in Columbus Monday and Tuesday, January 15 and 16, with an attendance of about 30, representing about that number of the larger drain tile factories in the state. The discussion ran largely to prospects for the tile business during the present season. Reports showed that farmers in all sections are in better shape than a year ago and consequently more buying of drain tile is expected. Shipping has started earlier than usual, which presages a good season. Stocks in the hands of manufacturers and agents are not as large as usual and it is apparently the feeling that none of the factories will have any great difficulty in selling their reserve stocks.

Many of the smaller plants in the state have not started and probably will not during the spring season. In all there are about 150 tile manufacturers in the state. The county of Ottawa alone has 13 factories, many of which are quite large.

While freight matters were discussed nothing was done towards reducing these rates since the Ohio Public Utilities Commission turned down the application for a reduction about a year ago. Technical questions of manufacturing and burning drain tile were discussed.

Banquet at Deshler

A banquet was held at the Deshler Hotel Monday evening, January 15, at which W. P. West of the Franklin Brick & Tile Co., Columbus, presided as toastmaster. Rev. C. L. Woodward, a Columbus rector, known as the Florida humor-

ist, was the principal speaker. Talks were made by a number of the men present but all were of an informal nature.

Officers for the coming year were elected as follows: Charles Nelson, of the Beaver Dam (Ohio) Clay Co., president; Leo Nelson, of the same concern and a son of the president, vice-president; J. D. Ramsey, Stryker, Ohio, secretary, and H. F. Kelm, Stryker, treasurer. The board of trustees consists of Harry Van Cleve, London; Charles Smith, New Washington; J. Leo Child, Findlay; John Wilson, Perrysburg, and W. P. West, Columbus. Mr. West was made chairman of the board.

The usual quarterly meetings of the members will be held in Columbus, the first to be called some time in April.

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I. C. C. HOLD UP TARIFF CHANGE

The Interstate Commerce Commission has suspended from January 1 to May 1 the operation of schedules contained in Supplements Nos. 10 and 11 to Agent F. A. Leland's tariff I. C. C. No. 1528.

The suspended schedules propose the cancellation of the rule for constructing combination rates, on brick and related articles, applicable in the construction of thru rates from and to the lower Mississippi River crossings and points in Louisiana and the application in lieu thereof of full combination of local rates, which will result in increases in rates equivalent to the amounts at present authorized to be deducted by the existing combination rule.

Cleveland Is the Mecca of All Common Brick Producers

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

THE OUTLOOK FOR POTTERY

SETTLEMENT of the strike in the generalware pottery industry, the return of employes to their benches, with a $4\frac{1}{2}$ per cent. increase in wages has put the industry in sounder shape than it has been for quite a long time.

At a meeting of the western members of the United States Potters' Association held in East Liverpool, Ohio, the afternoon of December 28, a complete and comprehensive report of the last two sessions the Labor Committee of the Association has held with the Executive Board of the National Brotherhood of Operative Potters was reviewed by W. E. Wells, of the Homer Laughlin China Co., Newell, W. Va., and chairman of the Labor Committee.

Pottery Strike Settled

At a joint meeting of the two committees held in the William Penn Hotel, Pittsburgh, Pa., December 5, and without making a single promise by inference or otherwise, the pottery strike was declared off by the Executive Board of the Brotherhood. Then something else followed: A few days after this meeting at Pittsburgh, it was arranged that the two committees should go into joint conference at Atlantic City December 18 for the purpose of discussing a new wage scale, or for the purpose of making such adjustments as might be deemed expedient.

For three days this conference continued, and ended in a new wage agreement being determined upon to continue in effect until October 1, 1924, and to become operative January 1, 1923.

New Wages Effective

In substance, this new agreement calls for an advance in wages of $4\frac{1}{2}$ per cent. over the scale in effect at the time the strike was called, and when the pottery workers demanded an increase of seven per cent. over the old scale. This new wage agreement for the different branches of the industry shows the following changes in plussages:

Jiggermen and dishmakers, 46 per cent.; casters, dippers, turners, and handlers, 41 per cent.; pressers and stickers-up, 51 per cent.; molders, 25 per cent.; saggermakers, 41 and 42 per cent.; packers, 61 per cent.; warehousemen, \$5.25 per day; kilnmen, \$3.17 per day (kilnmen's); kilnmen's bench boss, \$3.78 per day.

A few changes in working conditions in the shops have been agreed to, but in the main these were made a matter of record at the initial joint wage conference held in Cleveland last August, and which was followed by the calling of the strike.

The strike in the generalware pottery industry lasted over a period of nine weeks. There is another point that many

have overlooked, and that is, manufacturers' lost production nearly over an eleven-week period.

Closed Down Week Before Strike

When it was known that a strike would become effective October 1, 1922, clay shops closed down a week before that. The object of this was, that manufacturers did not want to have their green ware houses filled with ware. Kilnmen were kept at work up to the last day of the strike, as were packers and many decorating shops. Then when the strike was called off, it took about a week for manufacturers to get their plants back in running order, such as getting clay presses ready, starting agitators and a dozen different things.

The various plants in the East Liverpool district had been working only a few days, and the first new kilns were lighted, when a severe cold snap fell over the Ohio Valley, and immediately the order was issued that fires should be turned from all kilns so that gas could be diverted to domestic use. Happily, however, production continued in all other departments of the plants, while kilnmen, both glost and bisque, were idle.

Much New Business Coming In

Those plants using coal and also fuel oil for kiln firing purposes were not concerned in the "gas" order, and of course production in these shops continued without interruption.

Since generalware potteries resumed operation, there has been a flood of new business received by all manufacturers. Very serious inroads were made on stocks in the hands of distributors while the strike lasted, and with no replacements, many bins were literally bare of ware. Today is the day of replacements of staples, open stock patterns and specialties. The jobbing interests have been unable to replenish their stocks, and the department stores, on account of the excessive buying of dinnerware during the holiday season are very short of ware, hence the heavy demand for merchandise being made upon the manufacturers.

Prospects for heavy business during the whole of 1923 in the generalware pottery business were never brighter.



EXPORTS KEEP BRITISH POTTERS BUSY

(By Special English Correspondent)

The pottery demand in Britain is now practically non-existent and this state of affairs will continue (if past experience is any guide) until February, 1923. This is the natural reaction from the Christmas demand there. The Staffordshire folks always prepare for the New Year period of slackness by concentrating on their export business. Just now they are saying that were it not for the new world things with them would be in a bad way and that if they had to await the recovery of Europe the industry's outlook would be rather black.

The seasonal falling-off in local trade is more than counterbalanced by the foreign trade, however. North and South America and Australia, particularly, are proving profitable trade channels for the Staffordshire people. They are, in fact, the chief markets. Since earthenware prices have

undergone revision to meet the increased duty engendered by the United States tariff the potters in England say that business is more brisk.

Very careful consideration is now being given the South American pottery markets which, the potters say, are undergoing an important change. Normally, the Brazilian and Argentine pottery markets are important to Staffordshire, altho the general run of goods required has been in white granite and common earthenware. Now that South America is showing signs of returning prosperity the potters here are finding a distinct trend in business inquiries for only the best quality ware. Orders for recent shipments are mostly for a very good class of earthenware and semi-porcelain, while there are large consignments on the way of high-grade pottery. All this stuff is now brightly colored to conform to the color taste of the Latin races. Cities like Buenos Aires, it seems, now include in their orders in England, the sort of high-class goods demanded by such centers as New York city.

New orders in the home market are scheduled for delivery not earlier than February and many houses will utilize the opportunity of slackness to take stocks. The jet and rockingham ware producers are diverting much of their stuff to the continental centers such as Switzerland, Scandinavia and Holland. Germany (before the war a big purchaser of jet and rockingham ware) is buying nothing in this line.

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BUYERS INVADING POTTERY MARKET

January invasion of the pottery districts of Ohio, especially East Liverpool, is expected to begin during the next two weeks, following the opening of the annual ceramic exposition in Pittsburgh. Thousands of dollars of merchandise will be offered from pottery manufacturers before the end of the month. Buyers representing jobbers and department stores will make personal visits to the market.

Inasmuch as stocks in the hands of distributors are exceedingly low as a result of the 60 day strike in generalware plants, which ended early in December, buying this month is expected to be heavy. Market invaders will not only purchase spring requirements, but will anticipate merchandise needs for summer and early fall. Adding these purchases to a large number of unfilled orders already on books of pottery manufacturers increases the optimism in the industry.

Production thruout Ohio is nearly at a normal mark. Vacancies in working forces were filled in many cases by former generalware workers who have been identified with the sanitary branch of the trade during the last year or more.

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POTTERS' WAGES INCREASED 4½%

A new potters agreement began January 1, 1923, and will run until October 1, 1924, carrying a 4½ per cent. increase in wages. The settlement followed a nine weeks' strike which disrupted the pottery business thruout New Jersey and the East. The compromise was understood to be on a 50-50 basis.

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VAN BRIGGLE BUILDING KILN

Increase in the capacity of the Van Briggles Pottery Co. at Colorado Springs, Colo., will be effected when a new 20 foot kiln now under construction is completed. It is estimated that this kiln will add \$35,000 annually to the value of the company's product.

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DOUBLING CAPACITY OF COORS PORCELAIN

Much of the old machinery is to be discarded and pottery machinery of the latest type will be installed at the plant of the Coors Porcelain Co., Golden, Colo. This is part of a

program for enlargements and additions which are to be made. A two story and basement addition is to be erected and the present kiln room building will be enlarged. When the new construction work is completed the pottery plant will have dimensions of 46x300 feet, all under one roof. The capacity of the plant will be doubled.

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COMPLETING INSULATOR PLANT

The insulator plant being erected by the Dominion Insulator Co., a branch of the Ohio Brass Co. of Mansfield, Ohio, at Niagara Falls, Ont., is nearing completion. Mr. Dietrichson had charge of construction and will manage the plant.

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RE-EQUIPPING FRENCH PLANT

The Canadian Porcelain Co., Ltd., of Hamilton, Ont., will re-equip the plant of Haniland & Co., at Limoges, France. A company has been formed known as the Insolateurs Canadian-Haniland to manufacture insulators for which there is a considerable demand in France.

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HOLD LARGEST POTTERY EXHIBIT

Samples of clay and clay products amounting to about \$2,000,000 were exhibited at Pittsburgh by members of the Associated Glass, China & Pottery Manufacturers during the exhibition held January 8 to 20. The display was a magnificent one and consisted entirely of American goods. 11 floors of the Fort Pitt Hotel were used and two floors of the William Penn Hotel and Hotel Henry. Several hundred factories were represented in the exhibit which was the largest ever shown in this country.

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FIND POTTERY CLAY AT COEUR D'ALENE

Clay suitable for the manufacture of buff colored pottery such as stoneware, kitchenware, yellow mixing bowls, tea pots, and so forth, in addition to ordinary structural uses, has been discovered at Coeur D'Alene, Idaho, as a result of tests made by the University of Washington. The clay is also suitable for a lower grade of refractories and fire brick.

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SEBRING MOVING CRESCENT PLANT

When the Sebring interests sold their Crescent Pottery at Niles, Ohio, to a new concern, all the glaze and bisque ware then on the floor or in process of being worked thru was to be retained by the selling interests and removed from the Niles plant before January 1. The ware is now being removed to Sebring, where the company is erecting a new plant, and which will also be known as the Crescent China Co.

The former Niles plant has been taken over and placed in operation by a new corporation under the name of the Atlas China Co. This interest is composed of A. O. Ahrendts, formerly of the Brunt Pottery Co., East Liverpool, as president and general manager, D. B. Howell, vice-president, and C. S. Waderska, secretary. Others in the company are Harry M. Stevens, New York City; William H. Stevens, Niles, and Attorney G. P. Gillmer, of Warren, Ohio.

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NEW POTTERY IN MORTON, ILL.

Incorporation has been announced of the Morton (Ill.) Pottery Co. The capital stock will be \$50,000. Incorporators are D. W. Rapp, Wm. Rapp, and J. E. Cerber. As correspondent is mentioned Tichenor, Todd, Nilson & Bartlett, Central National Bank Bldg., Peoria, Ill.

INVENTS NEW TEAPOT SHAPE.

Arthur H. Gibson, of Burslem, England, has invented a new teapot and in order that he might have his invention all to himself has taken out a United States patent. The invention has been described as a "teapot, coffee pot or pouring vessel, having a body constructed with its upper and lower portions of greater diameter than the middle, and with the spout extending from above the widest lower portion, and up the outside of the curved body so as not to project beyond the lower widest part."

* * *

NILOAK TO BUILD NEW KILNS

Capacity of the Niloak Pottery Co., at Benton, Ark., is to be increased thru the erection of several new kilns, according to report heard in the east. The plant is featuring a line of art and novelty pottery unlike anything on the market. The sales management of this company has just been placed under the direction of W. Ray Renouff, of East Liverpool. A score or more of new shapes are to be added to the Niloak line early in 1923, mainly for jobbing trade and who employ hundreds of salesmen. Varied hued native clays are used exclusively in the manufacturing of this line of ware, colors being reds, browns, blue and white.

* * *

STANDARD TO ENLARGE PLANT

Announcement has recently been made by the Standard Sanitary Mfg. Co., Louisville, Ky., of the purchase of the fairly large tracts of land adjoining its plant, part of this land to be used for immediate extension of the big sanitary ware business of the company, and part for future needs of a rapidly increasing business.

It was reported by the company that one of its first considerations is for enlargement of its china or porcelain producing departments, which make principally small pieces, such as white handles for fine faucets, lettered china markers for hot and cold water, and so forth. Eventually the plant will probably put in a department for producing clay or pottery items of other varieties used in plumbing, there having been some talk of putting in a department for making closet bowls at the Louisville plant.

* * *

DISCOVERS CHINA CLAY IN SASKATCHEWAN

The discovery of a deposit of fine china clay in southern Saskatchewan in the Wood Mountain district by Miss Helene Pachal, of Regina, has created considerable interest. The young lady, a graduate of the New York School of Clayworking and Ceramics, located the deposit after two years of prospecting and searching in the hills of the province, it is said. The clay is reported to be of very high grade, requiring only a small percentage of outside materials to make it fit for manufacture into fine ceramic products. Tests made by Miss Pachal show the clay to be suitable for manufacture into table ware and electric insulators.

* * *

POTTERY TRIPLES CAPITAL

The authorized capital of the W. S. George Pottery Co., of East Palestine, O., has been increased from \$500,000 to \$1,500,000 by papers filed with the Secretary of State, a report states. The increase was made in order to increase the facilities of the plant.

* * *

SPEND \$175,000 IN IMPROVEMENTS

W. A. Potter, manager of the Pacific Sanitary Manufacturing Co.'s plants at Richmond, Cal., is making some ex-

tensive additions and improvements. The San Pablo Pottery works are being tripled in capacity by the addition of new kilns, a new grinding plant, and new slips. At the Barret Avenue plant new offices and minor improvements are being made. Some \$85,000 worth of improvements are also under way at the North Richmond plant, making the total expenditures some \$175,000.

* * *

PATENTS NEW KILN IN AMERICA.

An American patent has been taken out by Charles F. Bailey, of Lawton, England, on a pottery kiln, which has been described:

"In a pottery kiln, an arched passage, a kiln arranged at each side of the passage, each kiln being provided with a fire place arranged crosswise of it and adapted to be fired from within said passage, and a third kiln arranged above said passage, and provided with a chimney, all three kilns being provided with heating flues extending around them and connecting the two fire places with the chimney."

* * *

KOHLER BUILDING NEW BRANCH

The Kohler Co., Kohler, Wis., manufacturer of sanitary ware, has acquired property at Thirty-second and Turner Streets, Philadelphia, Pa., totaling about 15,000 square feet, and will use the site for the construction of a new three-story building for a direct factory branch. Plans will be prepared and work placed under way at an early date.

* * *

POTTERY FOR SOUTH ZANESVILLE

A new plant is to be built at South Zanesville, Ohio, it is said, and plans are now under way for its erection. Crockery and earthenware will be the products. The company will be capitalized at several thousand dollars with local capital. Work will probably be started on the erection of the plant in a short time.

* * *

DARNER BUYS GUERNSEYWARE PLANT

Announcement is made of the sale of the Guernseyware factory at Cambridge, to E. M. Darner, of Zanesville, well known and prominent pottery man. The plant was purchased at a receivers' sale at approximately \$80,500. The industry is one of the best equipped in this section of the state for the manufacture of high grade pottery. Plans are under way by Mr. Darner for placing this pottery in immediate operation.

* * *

C. A. MAY CELEBRATES 70TH BIRTHDAY

Charles A. May, president of the Maddock Pottery, Lambertton Works, Trenton, N. J., celebrated his seventieth birthday on January 10. Mr. May is not only prominent in the local pottery industry, but a leading figure in civic affairs, banker and sport enthusiast. He was born in Trenton and has always lived in that city.

* * *

DEATH OF JAMES BARLOW

James Barlow, Trenton, N. J., retired superintendent of the Mercer Pottery of that city, died suddenly at his home, January 5. In his earlier years he operated a local pottery in association with the late William Wood, known as the Alpaugh-Magowan Pottery. Later he became superintendent of the Mercer plant and occupied this position for more than 40 years. He is survived by his widow, two sons and three daughters.

Management and Superintendence

HELPFUL IDEAS IN CONSTRUCTION WORK

The information and photographs accompanying this item have been published in Brick and Clay Record before, but they are of such general interest, and requests have been made for information of this sort that Brick and Clay Record will risk reprinting them.

Ingenious devices developed by M. M. Minter and which he has used to great advantage in kiln construction work, are the subject of this item. The equipment which he improvised and which is herein described is very easy to construct and is very helpful on any plant because there is always need for additional dryer tunnels, kilns and flue construction.

One of the devices is a form for arch construction which can be used when building kilns, dryers and waste heat systems. The method of constructing this arch form is very simple and by referring to the accompanying illustration can be readily understood without any description.

By lifting the string which is attached to part of the apparatus, the crown of the equipment is caused to raise by reason of the lever arrangement which can be noted by studying the illustration. When the brick arch has been constructed and it is desirable to remove the form, all that is required is to loosen the string and permit the crown to lower. The form may then be easily removed.

By using the above device much time and labor is saved. There is no difficulty in removing the form such as is met with in the use of lift-forms which often cannot be taken out without damage to the apparatus.

The other device is used in connection with building damper spaces. In making allowances for the places to be occupied by a damper in a flue or stack, a template of some form is generally used. However, ordinarily, when the time comes to withdraw this apparatus it is usually found a very

difficult operation. Most of the time the template is held so securely by the surrounding brick work that it must be broken and taken out in pieces. Besides being a tedious job and



Showing Different Parts of the Apparatus and How the Uprights May Be Pushed Together to Facilitate Easy Removal from the Flue.

consuming considerable time and effort this procedure is expensive. The lumber can seldom be used over again.

Practically all of these disadvantages are overcome by the apparatus designed and employed by Mr. Minter. Two long 2 x 4 in. pieces of timber are connected by short



A Close-up View Which Enables One to Study the Details of Construction for an Ingenious Device Used to Aid the Bricklayer in Constructing Arches for Flues.



Damper Template Partly Removed from Its Position in an Underground Flue. An End View of Its Construction Can Be Noted Here.

Ⓕ Cyclopedia News Ⓕ

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

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CHICAGO, ILL.

ITEMS CONCERNING KILN CONSTRUCTION

The winter months, for many years, have offered the best time for making repairs, changes, additions and improvements around a clay working establishment because demand for ware is usually curtailed and because labor that is experienced in construction work is more plentiful at that time. Cold weather, often, delays this work until early spring, and it is with the idea of offering good, valuable, constructive advice along this line that we index here some of the pertinent and reliable information contained in the Cyclopedia.

A kiln is about the only thing next to raw clay or shale that is necessary in every case in the manufacture of clay or ceramic ware as the mechanical equipment and other details vary with various types of plants. It is evident, therefore, that every reader is vitally interested in this topic, and for this reason we have covered the subject in every detail, so that new kilns can be built and old ones remodeled in such a way as to produce the greatest possible efficiency.

The definitions covering kilns start on page 62 and run to page 86. These pages contain information on every type of kiln in use today, biscuit, glost, decorating and frit for the china and pottery branches, muffle for terra cotta and enameled ware, and continuous, down-draft, up-draft and tunnel for heavy clay products and structural ware.

These items cover such points on continuous kilns as the design and construction of the foundations, main walls, partition walls, flue walls, crown, producer house and kiln roof, good data regarding expansion joints, the difference between chamber and movable fire continuous tunnel kilns, how to build end walls and other parts to take up the excessive expansion in the walls, and how to overcome damp bottoms by the proper selection of site and proper construction.

The down-draft kiln is covered by items on the design and construction, showing the importance of good drainage, the chief points that should be considered in designing the bottom of

a kiln, the importance of having good stacks, the proper construction of dampers, how thick a wall or crown should be, the efficiency of down-draft kilns, the economy and cost of insulation, the advantages of steel encased kilns, an illustration and explanation of how to build a kiln sweep for putting on a crown, points on the proper location of the spring line of kiln crown in order to make it last as long as

possible, and the importance of having the fire boxes of the proper area in proportion to the floor area of the kiln and also to the stack area.

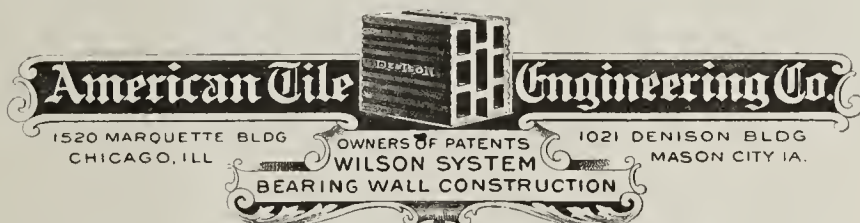
In the same pages listed above we also have valuable data on the operation of the various types of kilns, notes on the best methods of setting, and so forth, but have limited this index to design and construction data, which will be continued in our next issue.

"THE MOST NEEDED OF ANY"

F. E. KEELER President

W. E. WILSON Vice Pres.

B. C. KEELER Secy. Treas.



Mason City, Ia. Dec. 29, 1922

Brick & Clay Record,
407 So. Dearborn St.,
Chicago, Ill.

Gentlemen:

Attention Mr. F. A. Guignon

A number of months ago we obtained a copy of your cyclopedia and after going over it very carefully we find that in general it is very thorough and is covering the work much more satisfactory than anything that has been brought to our attention prior to this. With the additions and broader features you intend to incorporate in the next one, we believe that you will have one of the most valuable, handy reference books for the Clay Worker that there is on the market. We are glad to note that the recommendations made under the various subjects are in most cases far in advance of the regular practice and if carried out should prove of material benefit to the user.

We surely wish you success in this and believe the line that you are working on with this book is the most needed of any in the matter of public data.

Very truly yours,

AMERICAN TILE ENGINEERING CO.

BY

W. E. Wilson
Vice Pres.

WEW DLC



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Questions and Answers

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Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

CAPITALIZING THE CLAY DEPOSIT

1,059. California—Some time ago we wrote to in reference to capitalizing the clay deposit on a clay plant.

Fortunately, we are situated within a mile of our own clay deposit where we mine 95 per cent. of all the clay we use. This is a very extensive deposit of fire clay; and also above this quite an extensive deposit of sand which is very similar to a fire sand, and which we use very extensively in the manufacture of roofing tile, sewer pipe, and so forth.

In accordance with our understanding of the Income Tax Law we would be allowed to capitalize this as of March 1, 1913, and not use this as invested capital, but could use it in connection with a depletion of clay lands. The fire clay in our deposit can be used for the manufacture of hollow tile, the cheapest grade of material, to architectural terra cotta. Naturally, we consider it a very valuable deposit. We have written it on our books at 15 cents per ton for fire clay and 10 cents per ton for sand as it lies in the ground, the quantity of which has been established by borings.

Will you kindly let us know if you can give us any information as to what other manufacturers are doing regarding their clay deposits?

W. J. Westphalen, Secretary and Treasurer of the Laclede-Christy Clay Products Co., of St. Louis, wrote in this connection:

"It would appear to me that your subscriber is entirely within his rights in capitalizing such deposits.

"It will be observed that he states the purpose for which he intends this information is not for invested capital, but for deduction from income as depletion of clay lands. The rate per ton naturally would be governed by the value of the property as against the deposits contained therein. No doubt, the clay deposits have been determined by their engineers."

Another prominent clay products manufacturer wrote as follows:

"We had our clay properties revalued as of March 1, 1913, and have been charging depletion on the basis of this revaluation. In addition we have included in our invested capital on all tonnage mined since 1914 the proportion of depletion representing appreciation accruing prior to March 1, 1913. For definite reference we refer you to Federal Regulation No. 45, 1920 Edition, Page 208, Article 844, Item 2. Also to Federal Tax Bulletin No. 6, Series of 1921, dated February 12, 1921, and published by Commerce Clearing House, 20 E. Jackson Blvd., Chicago, items 4191-4195, Page 55.

"We had this clay property appraised by a geological man, and his appraisal of so much per ton was used in computing our depletion. In our case the appraisal price was very high, namely \$1 per ton and it is doubtful in my mind whether the government will recognize the full amount of the appraisal. In principal, however, I have no doubt that any appraisal of undisputed fair value would undoubtedly be approved by the department.

"We also wrote our books up in conformity to this appraisal and the additional went in a capital surplus account.

"We have made up our tax return in conformity to the above, but as we have not been audited by the Department.

"A great machine for mixing clay"—

This is what Mr. Voelker, of Winona Brick Yards, Winona, Minn., has to say about their

ONE-MAN EXCAVATOR

He further states: "We have used the One-Man Excavator we purchased from you last spring, and find it to be the only machine to handle clay economically. It is a great machine for mixing the clay because you get a clean cut from the bottom to the top of the bank. If you have anybody that wants to know anything about the machine direct him to us."

You, too, can get the same results with this labor- and cost-saving equipment. Now is the time to order your machine for spring delivery.

Write for our new catalog today

**The Bay City Dredge Works
BAY CITY, MICHIGAN**

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we are not in position to state whether exceptions will be taken to the same."

Thru the courtesy of the Commeree Clearing House, and their attorneys, Kix, Miller and Barr, we are able to publish the last reference made above.

INVESTED CAPITAL

Value of Property in 1913 May Increase Invested Capital Thru Effect Upon Depreciation

4191. Certain Reserves Included in Surplus.—We have your request for explanation of the effect of the following provision from Article 844 of Regulation 45:

Reserves for depreciation or depletion cannot be included in the computation of invested capital, except for the following extent:

Where depreciation or depletion is computed on the value as of March 1, 1913, or as of any subsequent date, the proportion of depreciation or depletion representing the realization of appreciation of value at March 1, 1913, or such subsequent date, may if undistributed and used or employed in the business be treated as surplus and included in the computation of invested capital.

For the purpose of computing invested capital depreciation or depletion computed on the value as of March 1, 1913, or as of any subsequent date shall, if such value exceeded cost, be deemed a pro rata realization of cost and appreciation and be apportioned accordingly.

4192. Depreciation Properly Deducted May Not Be Restored.—This provision does not purport to allow you to now add to your invested capital any portion of the amount charged off for depreciation, either prior to or subsequent to March 1, 1913, if such charges have been made at a reasonable rate on the basis of original cost. It relates merely to the fact (as explained in G. par. 201), that for purposes of the tax law the amount deductible for depreciation may be based upon value on March 1, 1913. If such value exceeded cost the deduction would be larger than if based upon cost. In the ordinary course of bookkeeping the entire amount deducted would be charged against surplus, and thus reduce invested capital for the following year. The ruling in question holds that such excess need not be so deducted.

4193. Illustration of Appreciation realized by Depreciation.—This may be made clear by an illustration. Assume a building with a life of 50 years, which cost \$100,000 in 1903. The depreciation allowance would be \$2,000 per year. If the building had an actual value of \$120,000 on March 1, 1913, when 40 years of its life remained, the deduction allowed for tax purposes would be \$3,000 per year. Of this, \$2,000 must be applied in reduction of the invested capital, but \$1,000 may be credited to a special reserve, such as reserve for depreciation representing appreciation occurring prior to March 1, 1913. The balance in such a reserve at the beginning of any taxable year may be included in the invested capital in addition to the book surplus.

4194. Invested Capital Not Reduced.—You will thus see that this ruling will not permit an addition to your invested capital, but merely holds that if you have increased your depreciation deduction by using March 1, 1913, value, you need apply the additional amount of such deduction as a reduction of invested capital. If this has been done this amount may be restored to the invested capital.

4195. Appraisal May Justify Addition to Invested Capital.—This suggests the following theory, which we have in several cases attempted to present to the Treasury Department. Where depreciation charges made prior to March 1, 1913 (and thus not affecting taxable income), have brought the book surplus which, of course, reflects the book value given to the assets, down below the point where it would stand if the book value of the assets was as great as their actual value, and if the amounts charged for depreciation



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in prior years had been no greater than the actual loss in value during the period, it appears that the invested capital should be increased by adding to the surplus the difference between the book value of such assets and their fair actual value on March 1, 1913, thus restoring the excessive charges for depreciation. While we have not obtained the recognition of the Treasury Department to the correctness of this theory, we have not yet had any unfavorable decision. In connection with a Government audit of your returns you may wish to develop this idea, or your case may justify taking the initiative by filing claim for refund. Respectfully submitted, Kix, Miller & Barr.

Drawn from the Kilns

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clay Manufacturing

ALBERT W. SHULTHIS STRICKEN BY DEATH

Albert W. Shulthis, 59 years of age, died at Independence, Kas. Mr. Shulthis was the foremost financier of Independence and also prominent in the clay industry. At the time of his death, he owned and controlled the Western States Cement Co., the Coffeyville Brick Co., with plants at Cherryvale, Coffeyville, Fort Smith and Collinsville, Okla.; the Mineral Wells (Tex.) Brick Co. and the Francis Vitrified Brick Co. at Boynton, Okla. He also controlled rights to the largest producing independent oil companies in the Mid-Continental field.

Death came very unexpectedly while Mr. Shulthis was on a hunting trip to Buffalo, Kas. He was stricken with heart failure.

ILL HEALTH FORCES BRICK MAN TO RETIRE

Ill health has forced W. H. Horrum to give up his brick and tile manufacturing plant at Auburn, Neb. Mr. Horrum has offered the plant for sale. In addition to his drain tile and brick business he conducted a contracting and building business.

SHOOTS SELF WHILE CLEANING GUN

While cleaning a shot gun preparatory to a day's hunting expedition, Stephen D. Powers of Abilene (Tex.) Press Brick Co. accidentally shot himself recently. The charge struck him in the chest and he died a short time afterward. Mr. Powers was 34 years old, and one of the owners of the above mentioned company.

HARGRAVE GOES WITH NICHOLSON

William B. Hargrave, who became associated with the Standard Brick Co., of Crawfordsville, Ind., after graduating from Wabash College eight years ago and who for the past three years has held the position of assistant manager with the above company, recently accepted a position with the Nicholson Corporation of Kansas City, Mo. This company operates six brick plants in several states near Kansas City besides a number of cement mills and other properties. Mr. Hargrave will be located at Harrisonville, Mo.

E. S. WALTERS JOINS KEMPER

Valuable addition to the staff of the Kemper Material Co., Cleveland, Ohio, is announced, in the appointment of Ernest S. Walters as salesman in the face brick department of that company.

Mr. Walters is noted for his unusually wide acquaintance among architects, engineers and contractors in the Cleveland



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district, and because of his long service in the building department of the City of Cleveland. Mr. Walters for 12 years was assistant to the building commissioner, in consequence of which he is looked upon as an authority on building in that district.

DEMAND GREATER THAN OUTPUT

All of the leading manufacturers of clay products in the Birmingham, Ala., district report that business with them is better than it has been for a number of years. All of the plants are being operated on full time, and the demand for clay products of all kinds is greater than the output of the plants.

John W. Sibley, manager of the Birmingham Clay Products Co., predicts a most prosperous year for the clay industry thruout the south. Mr. Sibley stated that business with them was fine, that they were receiving more orders than they were able to fill. "We will operate our plant all winter, as we have sufficient orders ahead to keep us going. We are not having any trouble now getting cars," he said.

MAY BUILD MUNICIPAL BRICK PLANT

President Charles H. Treat of the Board of Public Works of Los Angeles, Cal., is considering, with other officials the advisability of installing a city brick plant in connection with their new \$12,000,000 sewage disposal system. President Treat points out that about 32,000,000 brick will be needed, and that the city owns some good and convenient clay lands. Councilman Wheeler asserts that the city can save 50 per cent. It will be remembered that the city of Los Angeles manufactured its own cement for the famous aqueduct, the longest in the world, so the above may not be mere speculative talk.

NEW PLANT AT NILES, CAL.

Costello & Costello, owners of the California Pottery Co., of Oakland and San Francisco, Cal., have concluded the negotiations that have been pending for some time for a new site in Niles Canyon. The deposit has been operated by a brick company, and the brick left are being cleaned preparatory to the erection of kilns. While the new plant is being put in shape, the clay will be shipped to Oakland for use in the company's plant there. The plant is near the Western Pacific tunnel, and that line will put in a spur free of charge. The Southern Pacific already has a spur on the grounds. The Pacific Gas and Electric Co. will install a power line. The company expects it will be a year or more before the installation is fully complete. When completed, patent chimney tile, sewer pipe, hollow tile, and drain tile will be produced.

FORM COMPANY AT SANTA BARBARA

The Toro Canyon Brick & Tile Co. was organized some time since at Santa Barbara, Cal. The firm is composed of Carl Snow, Beverly Snow, Donald C. Grant and Peter T. Grant. The company has spent the past summer building drying sheds and installing machinery for a plant of 30,000 to 40,000 brick capacity. The deposit is a small mountain of fine clay, free from either lime or cement, and an abundance of water. A soft mud machine is already turning out the first brick for some local work; and the latest type of stiff mud machine is being installed, to be used for brick and the best grade of hollow tile.

The Grants are the pioneer brick and hollow tile manufacturers of Santa Barbara, having operated there since 1894. Before that they had acquired extensive experience, having operated yards at Santa Marie, Lompoc, Paso Robles, Gonzales, McKettrick and Santa Cruz, and at San Francisco, Seattle and Willets.



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The Burning Department is the most important one in your plant. What better Plant Betterment move could you make than to equip your kilns for oil-burning *now*.

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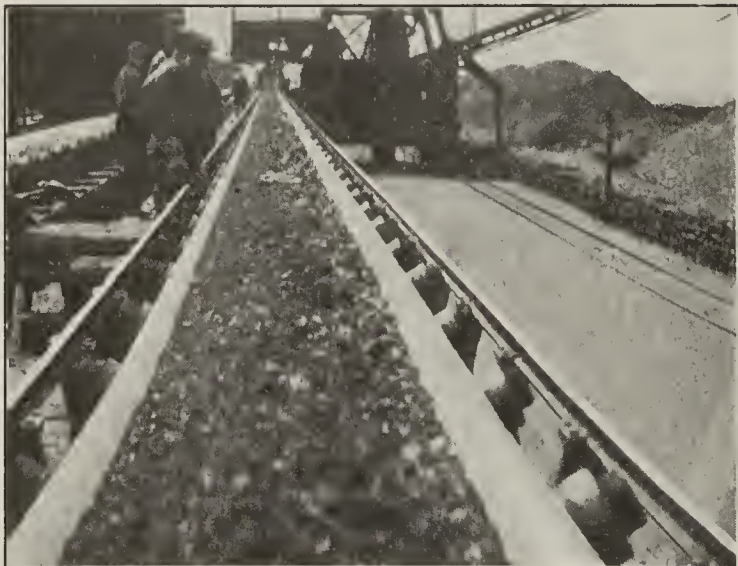
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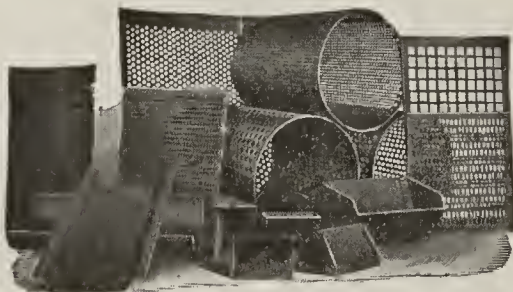
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STARTS PLANT BETTERMENT CAMPAIGN

Wm. V. Casey, who recently purchased the Denver Shale Brick Co., at Swadley station near Arvada, Colo., is making improvements which will reduce the cost of manufacture. He has installed a cost system and thru efficient management hopes to effect a substantial reduction in the price of the company's products. Mr. Casey has made an addition to the plant to manufacture stiff mud brick and to this end has installed a pulverizer and 75 horsepower motor. In the company's present brick plant, electrical equipment is being added to displace the old engine. The total capacity of the Arvada plant was about 75,000 brick daily.

L. D. Morris, who sold the plant to Mr. Casey has bought a five acre tract of land about three miles east of Arvada and is starting a brick and tile manufacturing plant there, it is reported. In addition to regular building materials, the Morris plant will manufacture terra cotta.

FLORIDA PLANT BUILDING NEW KILN

An additional kiln is to be constructed at the plant of A. J. Wolz & Sons, of Eustis, Fla., and total capacity for the manufacture of clay brick will be enlarged early in the new year.

TO REBUILD BURNED PLANT

Georgia Brick Co., Athens, Ga., will immediately rebuild the plant recently destroyed by fire; loss was \$40,000, it is reported.

COLUMBUS PLANT TO MAKE IMPROVEMENTS

Columbus (Ga.) Brick & Tile Co. will carry out extensive improvements during 1923. \$150,000 first mortgage bonds have recently been issued to provide capital.

SPARKS START \$40,000 FIRE

Fire in the plant of the Georgia Brick Co., Athens, Ga., did an estimated damage of \$40,000 recently. It is thought that the fire was caused by sparks from an electric motor.

ATHENS, GA., TO HAVE NEW PLANT

The Gold Brick Co., of Athens, Ga., is planning to construct a brick plant there, and contracts were to be awarded in January. One shed 30 by 400 feet will be erected, and motors and brick machines will be installed. The plant is to have a capacity of 30,000 common brick a day.

4TH GENERATION RUNS 61-YEAR BUSINESS

Extensive additions have been made by Stevens Brothers & Co., which has sales offices at Atlanta and two plants at Stevens Pottery, Ga. One plant makes refractories and the other sewer pipe, flue lining, and drain tile. The capacity of the fire brick plant has been increased to 200 tons per day, by the installation of a 350 H. P. Corliss engine, and a mixing and storage bin of ground fire clay, from which the brick machines are fed. An unusual installation at this point is the use of a "Sandvik" metal conveyor belt made in Sweden for feeding the ground clay to this bin, which has been in use for more than three months conveying quartzite. The company reports that this belt has given perfect satisfaction and intends to use this type of conveyor thruout its plants on slow moving conveyors.

The drying system has also been improved and five more 30 foot down-draft kilns built, making a total of 17. This plant makes four grades of fire brick and shapes.

The company has manufactured sewer pipe and fire brick for 61 years, and has the distinction of having made the first sewer pipe produced in the South. A relic of the old days, consisting of a large mill stone or granite rock which had a pole attached to it, can still be seen at the plant. This stone was turned by a mule and used for grinding the clay.

Some of the first sewer pipe, in 1867, were made on a press formed of a trunk of a tree hollowed out and banded with iron. The sockets were put on by hand.

The business was founded by Henry Stevens who came over from Cornwall, England, and developed by his sons, W. C. and J. H. Stevens. The present general manager, Walter S. Stapler, is the fourth generation of the family that has operated the business. Dallas L. Shields is general superintendent, L. R. Riley is superintendent of the refractories plant, and Crawford Evans of the sewer pipe plant. W. H. Smith has charge of the factory offices. This company has recently put on the market a high grade fire clay brick under the brand "HyTest," which has shown some exceptionally high tests as reported by Raymond M. Howe, Fellow of the Refractories Manufacturers' Association, at Mellon Institute. The fusion point has been placed at 3,254 deg. F. The sale of this brand of brick has increased materially since its first appearance.

The Stevens company enjoyed a very successful 1922 and is very optimistic about the outlook for 1923.

ALSEY INCREASES CAPITAL

The capital stock of the Alsey (Ill.) Brick & Tile Co. has been increased from \$25,000 to \$100,000, it is reported.

ALL STREATOR PLANTS NOW OPEN SHOP

The last of the Streator, Ill., clay factories to open since the declaration of open shop by the Streator clay plants last spring, was the Barr Clay Co. which is now in operation. The company experienced some trouble when it opened with non-union men recently and union men and strike sympathizers harassed the non-union men going to work. The open shop will be continued at the Barr Clay Co.

GETTING BANNER PLANT INTO SHAPE

The plant of the Banner Clay Works, Edwardsville, Ill., which the Alton Brick Co. recently absorbed, will be in operation about March 1 according to C. H. Henderson, manager of the yards. There is a lot of rebuilding and repairing to be done before the plant will be in first class condition. Some of the improvements to be made, is the laying of a quarter of a mile of new tracks, new floors in three of the kilns and electric lighting.

BIG NEW PLANT FOR DANVILLE

Announcement has recently been made that Danville, Ill., is soon to have a new clay plant. According to reports, the new company will take over the property known as the White-Barger-White Coal Co. A plant with a capacity of 300,000 brick daily will be built. The company has taken an option on 350 acres of coal and shale bearing land near the Western Brick Co. plant No. 3. The plant is to be thoroly modern, it is said, and much of the transporting will be done by gravity as the raw materials are approximately 60 feet above the plant proper.

GILL CLAY POT DOUBLES CAPITAL

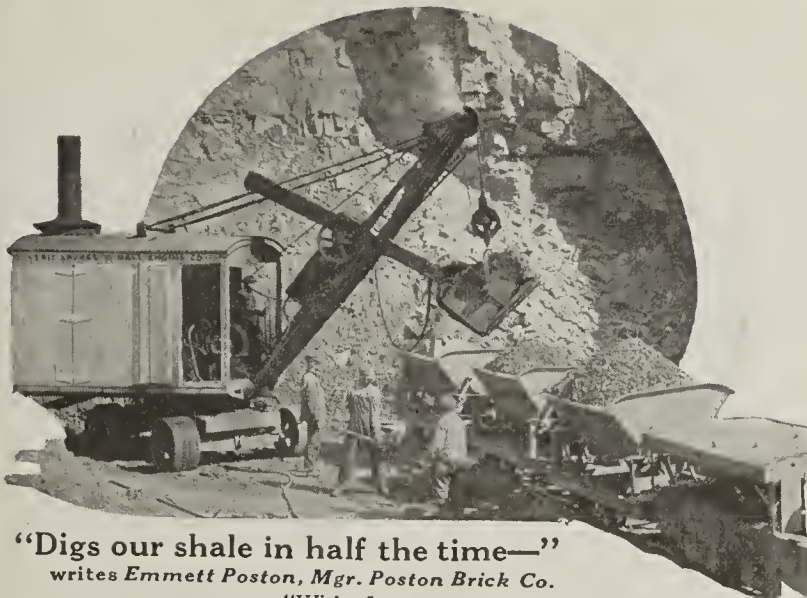
The Gill Clay Pot Co., of Muncie, Ind., has filed notice with the secretary of state of an increase in capital stock from \$100,000 to \$200,000.

ANDERSON, IND., PLANT CLOSES

Operations at the plant of the National Drain Tile Co., Anderson, Ind., were suspended recently. The plant will remain shut down for an indefinite time and during its idleness the necessary repairs will be made.

ELECTRIFYING VIGO-AMERICAN PLANT

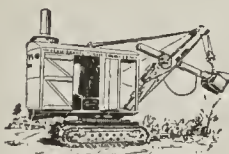
Contract for the work of electrification in the plant of the Vigo-American Clay Co. at Terre Haute, Ind., has been



"Digs our shale in half the time—"

writes Emmett Poston, Mgr. Poston Brick Co.

"With 5 men, the ERIE gives us plenty of shale to keep our plant running full capacity, and does a day's work of 11 men in 5 hours. And it has reduced our dynamite costs 90%. The ERIE has certainly proven a sound investment for tough shale digging."



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Savings like these will increase your profits—and the ERIE'S steady reliability will assure you raw material whenever needed. The ERIE is built much stronger than other shovels of its size. Upkeep expense is negligible.

We would like to send you a bulletin full of facts and photos, showing just what the ERIE can do in getting out your clay and shale. Write for Bulletin B-16.

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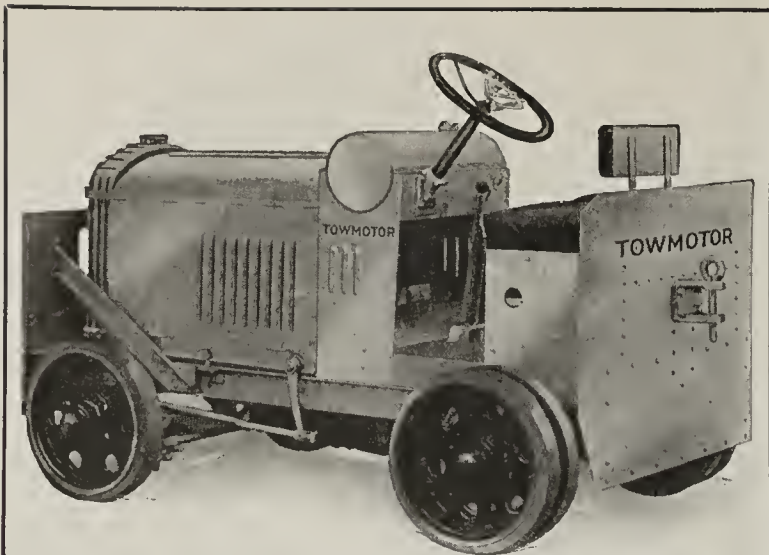
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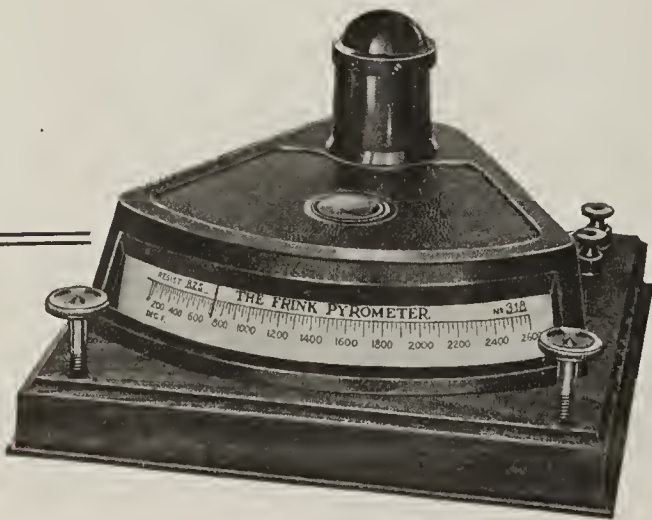
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FRINK PYROMETERS

which afford perfect control of all temperatures—saving time and money in the burning and enabling your burners to hold even temperatures, thus improving the quality.

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LANCASTER, OHIO



awarded. The electrification will be complete thruout. The equipment will include 16 motors ranging from 3 to 100 horsepower. The Vigo-American Company operates two plants, one of which was electrified two years ago. This type of power proved so satisfactory that it was decided to adopt it in the other plant. It is anticipated that costs will be cut when the installation is complete.

WANT INDIANA RATES REDUCED

The Chicago Fire Brick Co., the Chicago Sewer Pipe Co., and the Indiana Sewer Pipe Co., have filed a petition with the Indiana public service commission asking that it reduce railroad freight rates on the companies' products. It asks also that there be refunded any excess in the rates that have existed since December 30, 1920, over the rates that may be fixed by the commission. The present rates are too high in comparison with the rates in surrounding states, it is said. The companies have plants in Brazil and Mecca, both in Indiana.

GETS ORDER FOR 500,000 FACE BRICK

Walter P. Woods, manager of the Best Brick Co., of Evansville, Ind., has announced the shipment of the first carload of face brick to the site of the new Ford plant near Chicago. An order for 500,000 face brick has been secured for the Indiana company by its Chicago representative, and according to Mr. Woods, this is the first time Mr. Ford has deviated from Pennsylvania brick in his buildings. One car load of brick will be shipped every second day. Four units are contemplated, he said, and the total brick requirements will be about 4,000,000 to reach unit. This company recently increased its capital stock from \$50,000 to \$175,000.

INDIANA BRICK RATES READJUSTED

Readjusted brick freight rates have been ordered into effect in Indiana steam line traffic January 15 thru an order of the public service commission of Indiana. A. B. Cronk, attorney-examiner for the commission, who handled the case, said the readjustments were, for the most part, downward. There are some increases, he said, but the general effect of the order will be to lower the eastbound differential adjustments of brick rates to an approximate parity with westbound differential adjustments. The new rates not only are lower than the present rates, but are lower than rates carriers proposed to put into effect October 10. Those rates were suspended by the commission. The suspension period has just ended and before January 15 the carriers are to make the adjustments ordered by the commission. The case was laid before the commission by the Indiana Brick Manufacturers' Association.

FIRE BRICK BUSINESS INCREASING

J. H. Bell, of the Louisville Fire Brick Works, says the company is operating around 60 per cent. of capacity at the Louisville as well as Grahn, Ky., plants, having no trouble in getting the kind of coal wanted at a fair price, cars to bring clay from the mines to Louisville, or cars for handling shipments. There has been some congestion and delay in the terminals at Louisville.

SOUTHERN PLANS TO REOPEN

The Southern Brick & Tile Co., Louisville, Ky., recently closed down for needed repairs, anticipating bad weather, but is now planning to resume operations again, and take a chance on freezing weather staying away this year. So far the coldest period of the winter found the thermometer at around 15 degrees above zero, which isn't cold enough to stop building or brick manufacturing.

LEO PARSONS ON THE BUILDING OUTLOOK

Leo M. Parsons, of the R. C. Tway Coal Co., building supply division, in summing up the situation in Louisville,

Ky., said: "I've never, in my many years' experience in the building supply business, seen as much work carried over from one year to the next, nor have I ever seen as much new work coming out at the start of a year, or winter deliveries so heavy. It is a question today of getting material to supply orders, not a question of finding buyers to take the deliveries, as is the usual method of winter selling. Our deliveries today are almost as heavy as those of mid-summer, as the public has confidence in prices, and continuance of high levels. The city is growing and expanding, and business men realize that they might just as well go ahead and do it now as later, while home builders have finally reached the same decision."

MAINE HAS NEW CLAY COMPANY

The Lucas Brick Co., Portland, Me., recently incorporated with \$100,000 capital, has filed a certificate of organization with the registry of deeds. The company will manufacture brick and clay products. The officers are: Moses W. Lucas, Brighton C. Lucas and Maud C. Lucas, all of Portland.

W. E. VEASEY MAY BUILD BRICK PLANT

William E. Veasey of Havre de Grace, Md., has under consideration the formation of a company that will erect a plant to manufacture brick and other clay building products. The company is said to be in the market for brick machinery.

SHORT CIRCUIT STARTS FIRE

A short circuit of high voltage wires is said to have started a fire in the plant of the Briggs Clay & Manufacturing Co. at Grand Ledge, Mich., recently. Damage to the extent of \$15,000 was done and much of the machinery and equipment destroyed.

FINDS "BEAUTY CLAY" IN DEPOSIT

Members of the A. C. Ochs Brick & Tile Co., Springfield, Minn., have organized a company at \$50,000 to manufacture "Beauty Clay." This company recently discovered a strata of clay in its deposit which it is claimed has the necessary qualifications of the clay that is in great demand as a beautifier. The name of the company will be the Glacier Deposit Laboratories, Inc. Officers of the company are Wm. A. Ochs, president; Arthur O. Ochs, vice-president; Walter V. Wiedemann, second vice-president and sales manager; Joseph C. Epple, secretary; Walter M. Ochs, treasurer.

CEMENT BLOCK CUTS BRICK MARKET

Scarcity of brick in the New Jersey district during the latter part of December worked to the advantage of manufacturers of cement block and brick. Builders, unable to wait for brick, in many instances took concrete blocks as a substitute. Several plants at Elizabeth, New Jersey, report that the demand for cement block has been so great in the past few months that they have been working with full capacity and have orders booked assuring a record volume of business during the winter and spring.

DRY YEAR BEST FOR INSTALLING DRAINAGE

Experts of the University of Minnesota claim that a dry season is the best time to install farm drainage systems. Three reasons are given for a dry season being the best time. The work can be done with greater ease and cheaper at such a time. Better work can be done in dry weather because the tiler can see what he is doing and is not hampered by bad weather conditions. In a dry season preparation can be made in advance for the removal of excess moisture in the wet seasons to follow. Prof. Roe of the University states that "Farm drainage prevents drought and is a means of resisting its effects. Careful design and a

RICH CLAY DEPOSITS

ALONG THE

Lake Erie, Franklin and Clarion Railway

If you are contemplating the construction of a new plant, get full information regarding the rich clay deposits situated in the HEART OF THE GREATEST INDUSTRIAL REGION OF THE WORLD, divided approximately—6 ft. Plastic Clay, 5 ft. Semi-Flint Clay, and 5 ft. Flint Clay, eliminating the necessity of importing any materials. In many places coal is underlying the clay.

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*Its one-motor construction
is ideal for pit service—*

THE demands made upon a shovel are greatest, possibly, in the clay pit; hour after hour a quarry shovel battles with unyielding clay.

The Northwest Gas or Electric Shovel stands the shocks of the pit. It has only one motor. Full power at the dipper lip is obtained through an ingenious rig of cables. There are no gears, racks, pinions, auxiliary engines or other easily worn out complications.

How the Northwest stays on the job and how it cuts maintenance costs is an interesting story. Write the Northwest Engineering Co., Chicago, for specifications.

NORTHWEST
SHOVEL

CRANE
DRAGLINE
SHOVEL

complete plan are essential to good results in drainage, which, if installed under these conditions, is an inexpensive and permanent insurance of crops against drought as well as against excessive rainfall."

EDWARDS BRICK CO. REORGANIZES

The Edwards Brick Co., east of the city limits of Columbia, Mo., has been reorganized and new machinery is being installed in the plant. It is planned to make a stiff mud building brick and building tile to meet the local demand for this product. The new machinery will be in place soon and then the work of manufacturing the clay products will begin.

FIRE CLAY COMPANY FORMED

Missouri-Indiana Fire Clay Co. has been formed in St. Louis to manufacture and deal in fire clay products, it is said. Capital \$10,000. Incorporators are Hazel G. Thomas, 1025 Forest Avenue; Fred H. Schweteye, 4742 St. Louis Avenue; George E. Thomas, 1025 Forest Avenue.

DICKEY PUBLISHING HOUSE ORGAN

"Dickey Clay" is the name of the house organ which is now being published by the W. S. Dickey Clay Mfg. Co., Kansas City, Mo. This is a very attractive and clever bulletin whose purpose it is to promote Dickey clay products. In the January-February, 1923, issue the bulletin is making a strong argument for fire clay flue lining and giving unanswerable arguments why this material should be used.

SUTTON & SUDERLEY RAISE CAPITAL

Sutton & Suderley Brick Co., of Coeymans, N. Y., has increased its capital stock from \$30,000 to \$360,000.

DE NOYELLES CAPITAL STOCK INCREASED

The De Noyelles Brick Co., Haverstraw, N. Y., has increased its capital stock from \$60,000 to \$150,000, it is reported.

RAISES CAPITAL TO \$40,000

A recent report announces an increase in the capital stock of the Roach Hook Brick Co. at Coeymans, N. Y., from \$12,000 to \$40,000.

BROOKLYN CONCERN INCREASES CAPITAL

The Brooklyn Fire Brick Works, Inc., 88 Van Dyke Street, Brooklyn, N. Y., has arranged for an increase in capital from \$100,000 to \$750,000, for proposed expansion.

SOUTHERN MEN MEET AT RALEIGH

A meeting of Virginia, North Carolina and South Carolina brick manufacturers was held at Raleigh, North Carolina, December 28. The brick men were the guests of the Cherokee Brick Co., at Raleigh. Dr. W. C. Riddick, president of the North Carolina State College addressed the meeting and proposed the establishment of a school in ceramic engineering and practical instruction in design and construction pertaining to the brick and tile industry. This would, no doubt, be a splendid idea and a great thing for the industry in the South.

OHIO COMPANY INCORPORATES FOR \$500

The Phoenix Clay Products Co. of Columbus, Ohio, has been incorporated with a capital of \$500, it is reported. Incorporators are: M. Garner, I. R. Howarth, D. B. Pember, L. A. DesAutels and V. M. Hollopeter.

SELLS 5 MILLION BRICK IN A WEEK

Five million brick were sold in a week by the Wadsworth (Ohio) Brick & Tile Co. recently, according to announcement of George Puddington, who is in charge of the sales depart-

ment. Three millions of these went to local factories and the remainder of face brick to New York and Cleveland.

MAPELTON TO OPERATE CAPACITY

A busy season is ahead for the Mapelton Clay Products Co., with large plants at Mapelton, near Canton, Ohio. Officers of the concern said that indications pointed to a big year in the industry and that the concern was making preparations for capacity production within the next month or so. This plant has been operating at almost full capacity since July last. The plant is good for 45,000 face brick daily, officials said.

COLLINWOOD MAKES ADDITIONS

The Collinwood Shale Brick & Supply Co., Cleveland, Ohio, has completed an additional siding trackage of 450 feet, giving this firm 3,000 feet of siding on its property at its plant and warehouse.

In connection with improvements at the plant a new shale planer is being installed, which is expected to be completed in about four months. Because of the depth of the pit this planer will have to be built 20 feet higher than usual.

CAN'T SHIP MATERIALS

Clay industries in the Sugar Creek, Ohio, district are being hard hit by the car shortage. Approximately 1,800 carloads of building brick and other building material are lying in local plants. No shipments can be made because of inability to secure cars. Every available storage space is being rapidly filled. Unless relief comes the Sugar Creek Clay Products Co. will be compelled to close within a month or six weeks. The Finzer Brothers Clay Co. may be able to operate for several months.

CLAYCRAFT OFFICERS REELECTED

The annual stockholders' meeting of the Claycraft Brick Co., of Columbus, Ohio, which operates face brick plants at Shawnee and Groveport, Ohio, was held at the company's offices, Hartman Bldg., January 8. No changes were made in the officers, which are: W. H. Hoagland, president; H. J. Kaufman, vice-president and general manager; P. J. Hodges, secretary and assistant general manager; E. J. Kaufman, treasurer, and George G. Cowman, sales manager. The past year was a good one and prospects for 1923 are good.

CLEVELAND COMPANIES STOCKING YARDS

Building supply interests in Cleveland, Ohio, are stocking ahead, in most materials, against the time when a possible car or supply shortage may be felt.

The Builders' Supply & Fuel Co. is putting as much material as it can get at this time into its warehouses, according to A. L. Goldman, president and general manager. This is a wise move, that all dealers should make, says Mr. Goldman, as it provides against the time when a dealer can get business that otherwise might not be closed.

The Collinwood Shale Brick & Supply Co. has been keeping a stock of materials on hand right along, with a view toward having at least six months' supply in advance.

IRONCLAY RETAINS OFFICERS

The annual stockholders' meeting of the Ironclay Brick Co., of Columbus was held at the company's offices, Rugery Bldg., January 8. Practically all of the stock was represented and W. D. Brickell, president, presided.

Reports were received showing an excellent condition. The company operates a face brick plant at Shawnee, Ohio, as well as a face brick plant at Hanover, and several common brick concerns. In addition it operates a retail supply business in Columbus. W. D. Brickell was reelected president and treasurer; C. J. Neare, Cincinnati, vice-president; J. M.



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Made by the originators—

and backed by over 58 years' valve manufacturing experience—genuine *Jenkins Renewable Disc Valves*.

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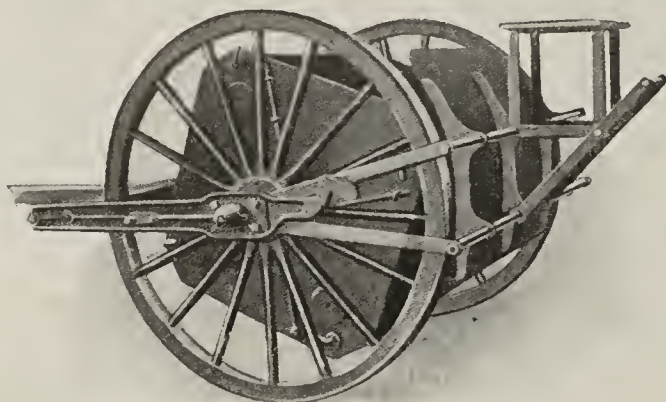
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about **ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.**

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ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

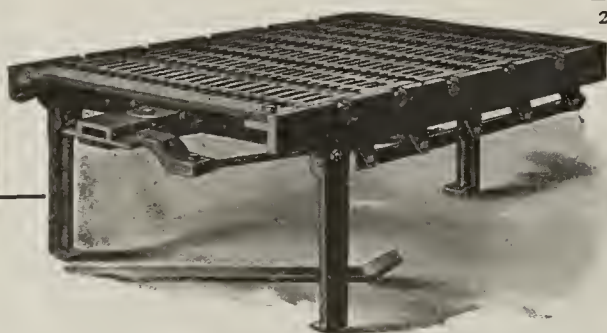
Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It wont cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



213



The Canton Grate Co.
1709 Dillon Place, CANTON, O.

Adams, secretary and general manager; David Lehman, sales manager.

FRENCH SAYS GOOD YEAR AHEAD

Prediction that 1923 will be a profitable one for the brick manufacturer, was made by Gale French of the Consolidated Clay Products Co., Canton, Ohio.

"The outlook for 1923 is very good and the brick industry should experience several busy months," he said.

French says that building activities promise to top all previous years and that the clay industry will be called on to contribute largely to construction from early spring until winter sets in next November. The Consolidated company reports all its plants operating. This concern makes common brick, face brick, hollow building tile and paving block.

MAY SCRAP OKLAHOMA STATE PLANT

There is considerable interest among the members of the clay industry in Oklahoma regarding the disposition to be made of the state brick plant at McAlester. There is considerable agitation on the part of organized labor that the prison industries be scrapped. The brick manufactured at the state plant are not sold in competition with other brick plants but the product is given free of charge for use in state enterprises. If organized labor has its way the plant will cease to be a prison activity.

SINER'S INCREASING CAPACITY

H. M. & C. B. Siner, Church and Tacony Streets, Philadelphia, Pa., manufacturers of common brick, are continuing expansion at their plant at Devereaux and Langdon Streets. In addition to a new drying shed, recently announced, work will be begun at once on a new building for brick manufacture and new boiler house.

SENDS "AIRDALES" FAR AFIELD

All previous records in the shipment of products of the Sumter (S. C.) Brick Works, manufacturers of "Dixie Texture Brick," were broken in 1922, officials of the company reports. Brick were shipped to Atlantic City, Boston, Montreal, Detroit, Milwaukee and Rochester, Minn.

NEW COMPANY IN S. CAROLINA

The Cornish Co., a clay working plant, has been incorporated with a capital stock of \$25,000 and with the election of the following officers at Hartsville, S. C.: President, J. L. Dunlap; vice-president, J. G. Cornish; secretary and treasurer, J. E. Dunlap.

RAISES CAPITAL \$10,000

Oliver Springs (Tenn.) Brick Co. has increased its capital from \$60,000 to \$75,000.

FORM COMPANY IN KNOXVILLE

The Southern Brick Co., Knoxville, Tenn., has been incorporated with a capital of \$25,000, it is said. Incorporators are R. P. Black, L. I. Fanz, and Charles H. Smith.

DIXIE COMPANY INCREASES CAPITAL

Amendment to the charter of the Dixie Brick & Tile Co. of Puryear, Henry County, Tenn., has been made. This amendment increases the capital stock from \$20,000 to \$100,000.

BUILDING ADDITION

W. T. Hardison, of W. T. Hardison & Co., Nashville supply dealer and brick and tile manufacturer, is expecting a very prosperous 1923 thruout the South, and has arranged to take care of his share of the business. He has completed the fifth major addition to his already large business, the last one being a large addition to one of the brick and tile plants.

DIXIE BRICK PLANS EXPANSIONS

In order to provide additional capital for the expansion of its properties during the coming year, the Dixie Brick & Tile Co., of Puryear, Tenn., has filed an application to increase its capital stock to \$100,000.

* * *

MODEL RAISES CAPITAL TO \$30,000

The Model Brick Co., of Houston, Tex., has announced an increase of its capital stock to \$30,000.

* * *

WHAT ABOUT SYNTHETIC BRICK AND TILE?*(Continued from page 119)*

Under another process the coloring matter, consisting usually of white sand and a high grade mortar color, is placed in the bottom of the mold and the concrete body on top of the face. This produces a face about one-half inch thick, which is very hard and dense. Practically any desired color can be made.

The terminology applied to cement face brick is very much similar to clay brick and stippled, smooth, tapestry, oriental, and matt effects may be had. These are produced in various interesting ways. The stippled brick are made simply by using a hand brush and batting the face of the brick. It will be seen that the process is quite simple and that men with but very little experience can produce brick.

Hard to Distinguish Cement Brick

It is difficult for the layman to distinguish the cement face brick from those made of burned clay and the manufacturer of face brick will find it difficult to show to the consumer the differences in the product, despite the fact that cement brick are very much inferior to the burned clay brick.

The manufacture of cement face brick is a new industry and when persons use this product and unsatisfactory results are obtained, the effect will be felt by the brick industry as a whole. And therein lies the greatest danger to the clay industry, the fact that the public will not be able to discern the difference between the two products. This means that if a building constructed of concrete brick fails to prove satisfactory, it will be a black eye for all brick. To the man who knows no different it will be just a "brick building," not a concrete brick building.

Difficulties Experienced in Laying

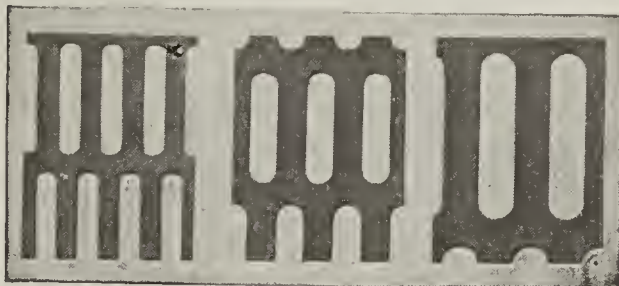
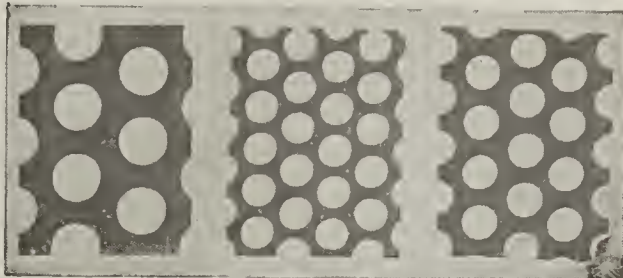
The accompanying photographs show a very interesting experience with cement brick in one city where a contractor attempted to use them. The brick would not bond with the mortar and it was necessary to use clay brick in every other course to secure the bond. This is very well shown in the photographs by the difference in color between the layers of brick in the wall. On another job where a wall was laid up with concrete brick, a frost caused the wall to twist and many brick were out of line, and on the whole a very poor effect was obtained. However, the bad effect of these instances reflects not only on cement brick but on brick as a whole, and every effort should be made to tell the public of the dangers in using synthetic brick and to protect the good name of clay products.

Hollow building tile manufacturers are offered stiff competition by the cement block which is now being used instead of hollow tile for building stucco houses. There are a great many instances where this form of construction has been used and, to all appearances, the homes when new look no different than stucco or hollow tile.

* * *

COMMISSION REPORTS ON COAL SITUATION*(Continued from page 115)*

of maximum requirements. Altho the country has never been able to absorb in a year more than 579,000,000 tons of bituminous coal, the present capacity of the mines is well above 800,000,000 tons.

Perforated Steel Screens**For Screening Clay, Shale, Sand, Gravel, Stone and Cement**

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

Like Groping**In The Dark**

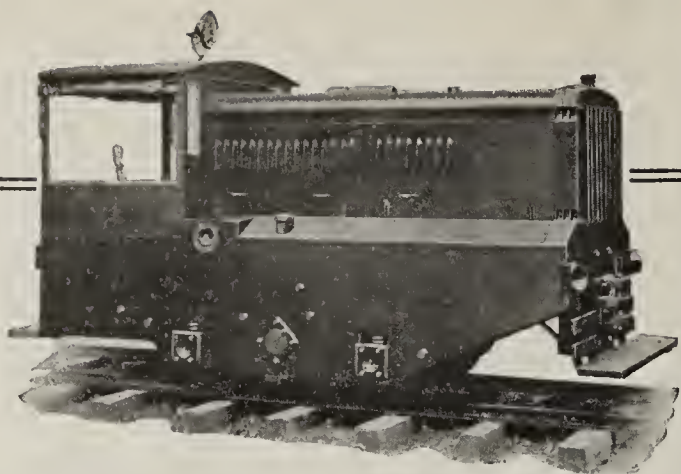
Color alone gives little indication as to what is happening in a kiln. Trials, settle and cones provide an index only in the later stages of production—and no burner can afford to grope in the dark until production is too far advanced to modify conditions.

To know what is happening during the early stages of burning is vitally important. Such information is made instantly available by the use of Thwing Pyrometers.

That these instruments justify their cost by the overhead they save we will gladly demonstrate upon request.

Thwing
PYROMETERSThwing Instrument Company
3347 Lancaster Ave. Philadelphia, U. S. A.

109-A



MINSTER LOCOMOTIVES

are particularly adaptable to clay pit work. Not only does a Minster offer you cheaper haulage, but affects a big saving in time and labor.

*Ask about the Minster
2 to 8 ton capacities*

THE INDUSTRIAL EQUIPMENT CO.
510-510 OHIO STREET MINSTER, OHIO

Eastern and Export Department
The Herbert Crapster Co., Inc.
1 Madison Ave., New York City

DIESEL ENGINES FOR CLAY PLANTS

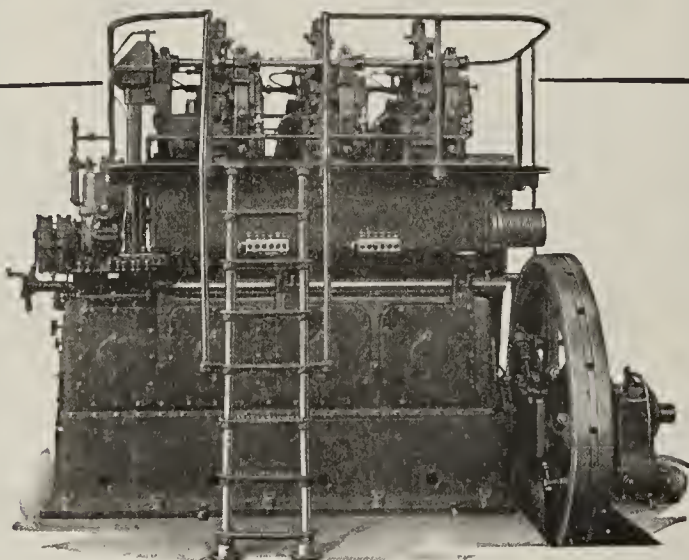
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.



The steady increase in the army of bituminous coal miners during the last four years, notwithstanding a lessened demand for their product, is also a fact that stands out in the statistical records furnished the Commission by the U. S. Geological Survey. In 1918, the year of maximum coal output, when 579,000,000 tons were mined, 615,000 men were employed in the bituminous coal mines, nearly 622,000 the next year, over 639,000 in 1920, and in 1921, 663,000 mine workers were employed in producing about 416,000,000 tons. To get a year comparable in soft coal output with 1921 we have to go back to 1910, when 417,000,000 tons were mined, and it is significant that in that year less than 556,000 mine workers were employed—or about a million more tons of coal with 100,000 fewer miners.

Miners' Capacity

The difference between 1910 and 1921 may be viewed by the consumer of bituminous coal somewhat as follows: The manufacturer who bought 10,000 tons of steam coal in 1910 paid for the year's labor of 13 1-3 mine workers, whereas if he bought the same amount of coal in 1921 he paid the wages of nearly 16 mine workers. This plainly is not progress, but the mistake must not be made of blaming the miner for a decreased output, for the average miner's daily output in 1921 was 4 1-5 tons, taking the 8,000 commercial miners, large and small, in the United States, and in 1910 his daily output was about 3½ tons, altho this difference is attributable in part to the increased use of machines. But in 1910 the average bituminous coal mine was operating 217 days as against 149 days in 1921.

This condition of overdevelopment in mines and of surplus numbers of miners is an underlying cause of the instability of the industry. It means unemployment and intermittent employment to the coal miner and a direct loss to him of earning power. It explains his need and demand for a day wage rate higher than the average for most other industries. It has also adversely affected the profits of the operator and imposed a burden on the consumer.

Seasonal Movement Handicaps Business

The seasonal character of coal movement is a serious handicap to the railroads in those districts where it is the rule. If the peak demands of the mines are to be met the carriers must provide equipment for which there is no use in the off-season.

The unequal distribution of work between mines, attributed by many persons to the assigned and private car system, is also being considered by the Interstate Commerce Commission at this time. By this system men in one mine may get perhaps only one day's work a week and others, even in an adjoining mine, may get six days' work, causing discontent and strengthening the demands for higher rates of pay applicable to all.

Cost to Public Enormous

As for the public, the cost of maintaining an overdeveloped industry is reflected in the high price of coal. We do not know accurately the extent of burden, but it may well be measured by the cost of keeping in the industry an excess of perhaps 200,000 miners and their families and the excess investment in mines.

The commission is convinced that there can be no permanent peace in the industry until this underlying cause of instability is removed. Divers causes have apparently promoted overdevelopment and inquiries are in progress as to the relative importance, among others, of the following: The policy of railroads toward encouraging the opening of new mines and new mine fields as sources of revenues; car distribution rules that permit, if they do not encourage, larger capacity than the market obviously requires; the opening of new mines by large consumers; the establishment of

Confidence! Faith!

We have faith in our ability to better your kiln operation and results by equipping them with GATES AUTOMATIC STOKERS. We back this up by our willingness to show you any installation we have made.

This is as fair an offer as can be made by anyone, and, we believe, merits your confidence. Come and see them yourself—no matter how skeptical you may be.

The Clay Service Corporation
138 N. LaSalle Street
CHICAGO

SIL-O-CEL

PREVENTS HEAT PENETRATION

TRADE MARK REGISTERED U.S. PATENT OFFICE

A CELITE PRODUCT

Kiln Insulation

HEAT lost through walls and settings of un-insulated kilns increases production costs



- 1—by causing an excessive consumption of fuel;
- 2—by making it difficult to get high temperatures and hold them evenly;
- 3—by causing imperfectly burned ware, due to uneven temperatures.

SIL-O-CEL Insulation reduces production costs

- 1—by preventing heat waste, thus lowering your consumption of fuel;
- 2—by holding a uniform temperature within the kiln and so reducing the number of rejects;
- 3—by protecting the outer walls of the kilns from temperature strains, prolonging their life and saving repair bills.

Complete information on Sil-O-Cel Kiln Insulation gladly sent upon request. Write nearest office for Bulletin B-5A.

CELITE PRODUCTS COMPANY

New York 11 Broadway Chicago 53 W. Jackson Blvd. San Francisco-Monadnock Bldg.
Offices and Warehouses in Principal Cities
CELITE PRODUCTS LIMITED, New Birks Bldg., Montreal, Canada



TYPE 31 - Six Foot HUM-MER

HUM-MER Electric SCREEN

Makes screening and crushing more profitable. Screens any material, wet or dry, from 2½" opening to minus 200 mesh

Send for Catalogue No. 45-B

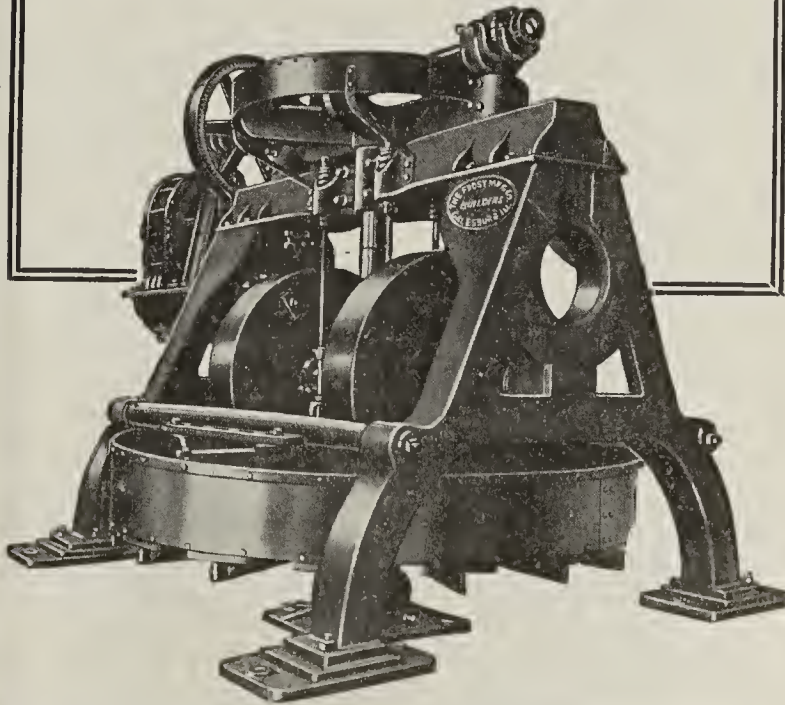
THE W. S. TYLER COMPANY
CLEVELAND, OHIO
Manufacturers of Woven Wire Screens
and Screening Equipment



BETTER QUALITY WARE

That is the result when Frost Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

AMSCO

THE MISSABE Manganese Steel Dipper

(Patented)



COST REDUCING FEATURES FOR CLAY PLANTS

1. Constant operation and few repairs assured by wearing qualities of manganese steel.
2. Only two pieces to main body. Few rivets to wear or shear.
3. Bail Brackets are set at proper angle on front casting to conform to the line of pull on the bail, thus relieving shearing strains and putting all the strain on front casting only.
4. All pin holes in the "Missabe" dipper in which severe wear occurs are fitted with keyed type renewable bushings of manganese steel.

Your copy of bulletin showing additional fixtures and full explanation awaits your call. Write for it today.

AMERICAN MANGANESE STEEL COMPANY

General Sales Offices—393 East 14th Street, Chicago Heights, Ill.

Foundries:

Chicago Heights, Ill.—New Castle, Delaware—Oakland, Calif.

AMSCO

freight rates that encourage the development of new fields; shifts in centers of consumption that abandon old fields and encourage new fields; the difference between union and non-union wage costs; large scale suspensions in the unionized fields; and irregularity of demand.

Coal Storage

A preliminary survey indicates that much can be done to overcome irregular demand by encouraging the storage of coal, and the Commission cannot stress too strongly the great advantage of coal storage during the spring and summer for fall and winter use.

✻ ✻ ✻

COLONIAL CLOSES PLANT

Colonial Brick Corp., Winchester, Va., has temporarily shut down while the company is being reorganized. It has not been stated when the plant will again reopen.

✻ ✻ ✻

THE BUILDING SITUATION

(Continued from page 124)

Greater Boston showed a total value of \$48,079,241 for construction work during the year just closed, the largest in the history of the city. This is an increase of about 100 per cent. over the figures of the previous year, when the aggregate value of permits was approximately \$24,000,000.

New Haven, Conn., rounded a total for new operations of more than \$10,000,000 in 1922, establishing a new record. Providence, R. I., closed the year with a record of \$6,649,000 to its credit, a peak period in the history of the local building department.

New York

All construction records in New York have been broken, and this is no mean accomplishment in a city as vast and progressive as the metropolis. The total stands at \$523,299,400, an increase of 35 per cent. over the figures of the preceding twelve months. A striking feature of the 1922 period was the tremendous increase in apartment house operations; this totaled \$174,700,000, as compared with \$156,400,000 in 1921, and \$35,500,000 in 1920.

Brooklyn not only stands as the leading borough in building operations during 1922, but its construction record of \$210,000,000 for the year places it first among all other cities of the nation; the previous year registered a total of \$162,132,747, while 1920 showed \$80,731,000. It is expected that the coming year will closely duplicate the one just closed.

Common brick has advanced to a \$20 wholesale level at New York, despite the fact that the past fortnight shows a slackening in demand, due to the advent of real winter weather. Lighter shipments, also, are reaching the city from the Hudson River points, these averaging from eight to ten weekly. The river is still open as far north as Haverstraw, and yards in this district are continuing distribution to the New York market. The recent heavy shipments, referred to in previous issues of Brick and Clay Record, have permitted a sufficient reserve in the Greater City to provide for all estimated demands for the remainder of the winter season.

New Jersey

The expected new construction record came to pass at Newark, and 1922 closed with a total of \$28,443,862, more than \$8,000,000 in excess of any previous year. New dwellings represent about one-half of the construction costs. Trenton closed the 1922 period with a valuation of \$4,315,453, a high mark in the history of the city, and an increase of over \$1,000,000 as compared with the figures for 1921. A total of 1,514 new buildings were erected. Pottery expansion is expected to be a factor of 1923 work, and a start has already

SCHAFFER POIDOMETER

"Very best investment we have made," says Howard Frost, President of Los Angeles Press Brick Co., in regard to their

SCHAFFER POIDOMETER

Read his letter—

"Our first poidometer is working fine, and we consider it one of the very best investments that we have made. We need a liquidometer for it, owing to the fact that the clay used is of variable moisture content. Our second poidometer is not as yet installed, but will be early next year, and the second liquidometer will be used with it."

The Schaffer POIDOMETER does all the work of the pug mill man—measuring, weighing and regulating the flow of the clay column with an accuracy of 99.75%, and at a rate of $1\frac{1}{2}$ to 21,000 lbs. per minute. No loss or waste.

The advantages of the Schaffer deserve your investigation.

Write for catalog and information.

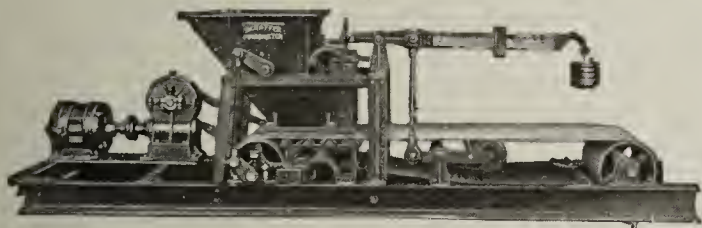


**Schaffer Engineering and
Equipment Co.**

2828 Smallman St., Pittsburgh, Pa.

*It's a success in a
hundred other clay
plants.*

Why not yours?



ALL KINDS and TYPES *of* CLAY WORKING DIES

THIS die illustrated is used for Partition, Wall and Load-bearing Tile, etc., has renewable wearing parts, thus insuring the tile to size and weight.

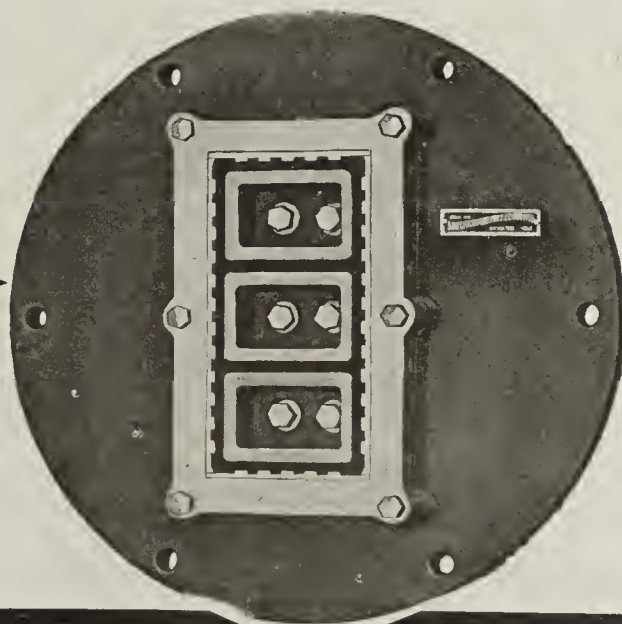
Note the grooved die liners and core plates, made of steel, heat-treated and hardened.

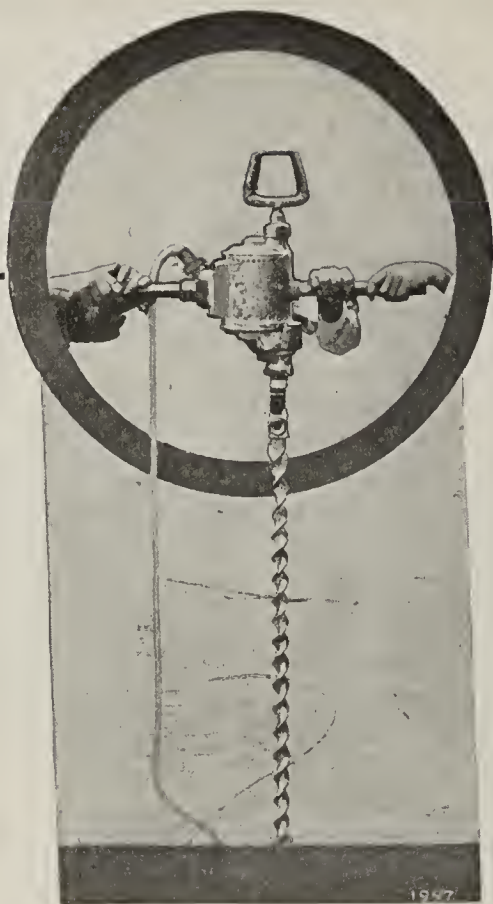
We also manufacture dies for all purposes. Tell us the die you need and we will gladly send complete information.

LOUISVILLE MACHINE MANUFACTURING CO.

LOUISVILLE, OHIO

*"If It's Dies
You Want
We Make 'em'"*





Connect-up with Little Giants

WHEREVER there's a current outlet, either D. C. or single, two or three-phase A. C., Little Giant Electric Coal Drills are widely used for shot-hole drilling and repair work.

For example, the A. P. Green Fire Brick Company, Mexico, Mo., using the Little Giant Electric Coal Drill illustrated, drilled fourteen four-foot shot holes through plastic, semi-plastic and flint clay while a hand auger drilled one such hole.

Put your shot-hole drilling and repair jobs on a production basis. Use Little Giants.

Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company

Chicago Pneumatic Building, 6 East 44th St., New York

Sales and *Service Branches all over the World

*Birmingham	*Detroit	Houston	*New York	*San Francisco
*Boston	Denver	*Los Angeles	*Philadelphia	*Seattle
*Chicago	El Paso	*Milwaukee	*Pittsburgh	*St. Louis
*Cincinnati	Erie	*Minneapolis	Richmond	Tulsa
*Cleveland	Franklin	*New Orleans	Salt Lake City	

R-15

BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR CO. • VACUUM PUMPS • PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES • ROCK DRILLS • COAL DRILLS

LITTLE
Coal



GIANT
Drills

been made in this direction by the Trenton Potteries Co. and other local plants.

Philadelphia

Construction at Philadelphia during 1923 is destined to remain on a level with that of the year just closed, which produced a total of \$115,000,000 for all classes of work. The first business day in 1923 of the local building department registered a valuation of \$2,000,000 in plans filed, while January 3, following, showed more than \$1,000,000. Two-story brick dwellings formed a feature of 1922 construction, with a grand total of 8,827 operations in this line, with aggregate valuation of \$41,794,825.

Baltimore

With every month of the past year averaging from \$2,000,000 to more than \$4,000,000 in the valuation of building operations at Baltimore, Md., it is not surprising that the city has experienced its highest period, with an aggregate of \$44,199,000 for the entire year. This is \$8,008,024 in excess of the total for 1921, or \$36,191,646, a previous high figure. Dwelling construction was the prominent phase of work in the 1922 period, when 3,500 structures were built at a cost of \$13,915,000.

Construction activities at Pittsburgh during 1922 produced an increase of about 50 per cent. over the operations of the previous year. Permits issued for work of all kinds in the year just closed attained the unprecedented total of \$35,255,375, as against \$23,429,744 in 1921. The construction of dwellings doubled last year, as compared with the 1921 operations in this line. The new year shows no signs of let-up and another high water mark is anticipated.

Chicago

The long looked for swing in building activity from habitation work to industrial and business building has so far failed to materialize in Chicago. This is brought out by preliminary survey of the building permits issued during the first half of January. The great bulk of the permits taken out were for apartment buildings and residences. Indications are that the month of January will total about \$18,000,000 in permits issued for new work. This is below the previous month's total but is considerably above the average for this time of year.

St. Louis

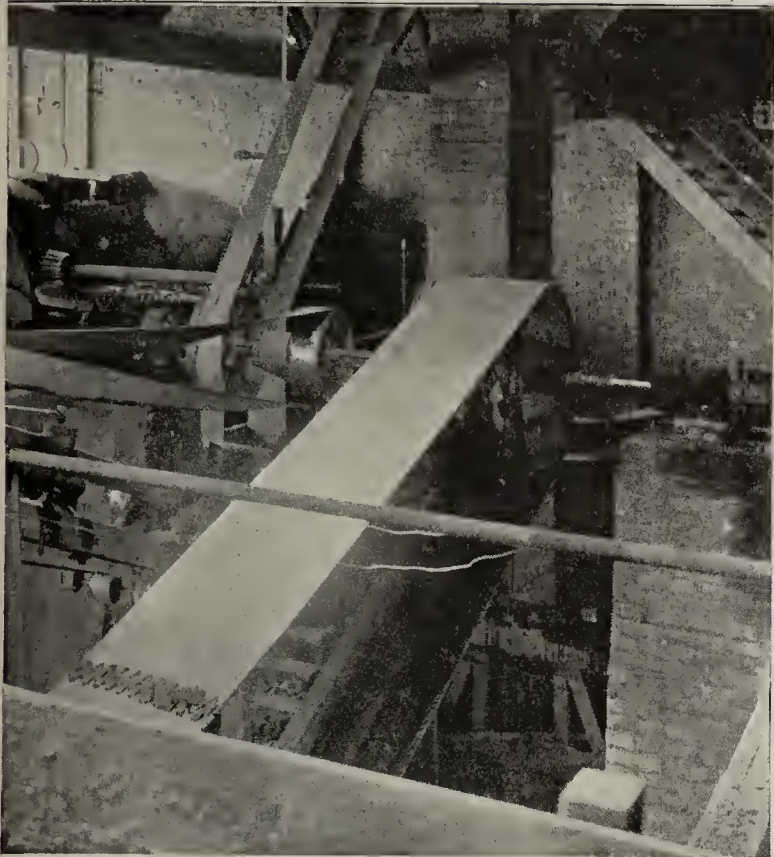
While construction work in St. Louis during 1922 amounted to almost \$10,000,000 more than that of 1921, the total being \$25,210,503, the average for the past nine years is below the previous ten years' average, according to data compiled by the Blue Print & Supply Co. The average construction from 1904 to 1912, inclusive, was \$20,848,822 a year, while for the period since 1913 the average has been but \$15,206,842. This drop of course is due to war conditions.

Canada

Contracts awarded amounted to \$90,000,000 more in Canada during 1922 than the previous year. Statistics show total construction undertaken to a value of \$331,843,800, compared with \$240,133,300 in 1921. Even in 1920—a year of feverish expansion and inflated costs—the monetary value of new building was \$75,000,000 less than last year. In actual volume of work performed the 1922 total may be placed 70 per cent. above that of 1920, due allowance being made for the present lower scale of costs. Going farther back, the figures for 1917, 1918 and 1919 at \$87,298,062, \$99,842,300 and \$189,821,300, respectively, look insignificant in comparison. Indeed, not since the pre-war period, when for three years (1911-13) the whole country enjoyed a phase of unwonted prosperity and development, has any aggregate been recorded to equal that of last year.



GOODYEAR MEANS GOOD WEAR



Copyright 1923, by The Goodyear Tire & Rubber Co., Inc.

On all the hard drives for which the brick and clay industry is noted—the main drive, the crushers and grinding pans, pug mills and brick machines, represses and auxiliaries—and in all conveying and elevator duty, Goodyear Belts have an earned reputation for powerful, trouble-free service and long, economical life.

They are designed and built to stand up under the severest of load, temperature and atmospheric conditions. They deliver the power and carry the tonnage. They are all specified to their work by the G. T. M.—Goodyear Technical Man.

Other Goodyear Mechanical Goods for this industry include steam, water, wash-up and mill hose, and asbestos sheet, hydraulic and piston packings. For detailed information about any of them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

GOODYEAR

Many a Man Has Found His Fortune In An Advertisement



THESE books may contain just the information you have been looking for. They may show you errors in the design of your gears which account for such frequent breakage. They may show you why your gears wear so rapidly and cost you so much money for shut-downs and renewals. If you take up these subjects seriously you will at least know more about gears and to some of you at least these books will point out the ways to *big* savings.

They are free

R.D.NUTTALL COMPANY
PITTSBURGH  **PENNSYLVANIA**

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Office
430 Land Title Bldg.

Chicago
Office
2133 Conway Bldg.

Nuttall



Hurricane Dryers

Drying Dipped Dinner Ware at a reduced cost and without marking is a problem "Hurricane" Engineers have solved for many manufacturers.

"Hurricane" Dryers are constructed and equipped to reduce steam, labor, power consumption, and turn out the best finished ware.

Where our standard machines will not meet requirements, we are prepared to submit plans for especially designed apparatus.

Let us tell you how our equipment can be applied to your plant.



235

**The Philadelphia
Drying Machinery Company**
3351 Stokley St. Philadelphia, Pa.

Western Office: 1814 Continental Bank Building, Chicago

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

CHANGE IN NAME

The Dodge Sales and Engineering Co., Mishawaka, Ind., which has for the past eight years been operating as the selling subsidiary of the Dodge Manufacturing Co. and Dodge Steel Pulley Corporation, has now been consolidated with the parent company, Dodge Manufacturing Corporation, which was organized and began business last July.

The Dodge Manufacturing Corporation at that time took over the two long established manufacturing concerns. Dodge Manufacturing Co. organized in 1880 and Dodge Steel Pulley Corporation organized in 1917 as the successor of the Oneida Steel Pulley Co. which began the manufacture of steel pulleys in 1900.

Since July, 1922, the manufacture of Dodge, Oneida and Keystone power transmission appliances and Dodge heavy oil engines has been conducted by Dodge Manufacturing Corporation.

The distribution of Dodge products, which has heretofore been done under the name of the Dodge Sales and Engineering Co., will hereafter be conducted by the Sales Department of the Dodge Manufacturing Corporation with Duncan J. Campbell, General Sales Manager, in charge and John A. Beynon, Assistant General Sales Manager.

The District Sales Organization of the Dodge Sales and Engineering Co. will be continued as branches of the Sales Department of the Dodge Manufacturing Corporation. Their activities will be considerably increased and the service to dealer and consumer from branch warehouse stocks will be kept up to the high Dodge standard of efficiency.

The Advertising Department of the Dodge Manufacturing Corporation will be under the direction of William W. French, Advertising Manager, and the activities of this department will include a complete program of dealer co-operation. The entire resources of this department will be at the disposal of dealers for developing local campaigns on Dodge products and extensive plans are under way for direct-by-mail and other forms of dealer helps.

The Dodge Manufacturing Corporation is the largest manufacturer of power transmitting appliances in the world and is equipped to furnish stock products such as iron, steel and wood pulleys, pillow blocks, hangers, etc., as well as complete rope drives, fly-wheels and water wheel harness especially designed and constructed to meet the requirements of every industry.

Distribution of Dodge products is made through fourteen branch warehouses in power using centers, as well as hundreds of representative mill suppliers and jobbers.

The Dodge Manufacturing Corporation also controls the Dodge Manufacturing Co. of Canada, Ltd., with head offices and works at Toronto, Ontario, and sales office at Montreal, Que.

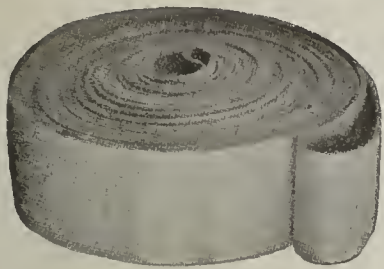
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NEW ¾ YD. POWER SHOVEL

The Fairbanks Steam Shovel Company, Marion, Ohio, one of the old excavating machinery manufacturers, have recently brought out a new three-quarter yard power shovel, known as their Model K.

This new machine is complete in every detail, but at the same time is simple in design and operation and rugged and well proportioned in construction. Full revolving swing, flexible endless tread traction, Fairbanks submerged tube ASME Boiler, reversing valve engines, two speeds of travel, insuring positive and economic moving, power boom hoist—to change boom immediately to any angle, power steering device—operated from cab, is regular equipment with this new shovel. It is also adapted for electric or gasoline engine power, as well as steam.

This machine has many features advantageous to clay pit operation, such as the traction tread which permits traveling over very soft ground without any additional planking; and the power boom hoist changing the angle of the boom to the best digging position for any height of face or bank—full revolving swing, which allows loading cars on both sides or at the rear of the shovel, increasing the output for this reason.



Green Duck Belting

Will Give SUPERIOR SERVICE

because it is made of just "*The Stuff*" to withstand the grit and dust of the clay plant.

One Green Duck conveyor belt conveyed 1,500,000 tons of gravel for the Ohio Gravel Ballast Company. To convey a similar amount of clay, with a tonnage of 300 tons daily, a Green Duck conveyor belt would give 100% efficient service for 17 years.

Tell our Engineering Department your belting needs whether for driving or conveying, and they will send you a sample of just the ply and width you want.

Write today

The Allied Belting Co.
GREENVILLE, OHIO



Famous for Economy

"PROCTOR" Dryers prove their wonderful economy in many ways.

Of outstanding importance is the tremendous saving of time made by these machines wherever they have replaced other methods of drying. Not only have they radically reduced the actual drying-time for all kinds of ceramic wares, but always their systematic operation has accelerated the flow of ware to the kilns and cut down the production schedule.

Invariably the installation of "PROCTOR" Dryers saves a great deal of labor, space and steam over other methods.

Then, too, the perfect quality of "PROCTOR" drying has increased the percentage of first quality ware and decreased the loss from spoiled ware in a substantial measure.

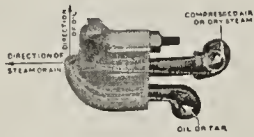
There's a "PROCTOR" Dryer for **your** ware among the various types of these machines we build. Let us make you acquainted.

PROCTOR & SCHWARTZ, INC.
PHILADELPHIA



Tunnel-Truck Humidity Dryer for Electrical Porcelain, Saggars, Chemical Stoneware, Tile, Refractories, etc.

There Is Nothing Better Than The "BEST" FUEL OIL BURNERS HIGH and LOW PRESSURE



The Steubenville Pottery Co., Steubenville, Ohio, have been using 60 "BEST" Oil Burners at their plant and they proved so satisfactory, they are installing 35 more.

They write:

"We have been using the oil burners from W. N. Best Co. on our large kilns for perhaps a year, and as an evidence of our faith in these we might say that we are at the present time equipping our Decorating Kilns with the same kind of burners."

"We fire our glost kilns in about 24 hours' time, using approximately 1,400 gallons of oil, and our bisque kilns we fire forty-eight hours using approximately 2,000 gallons."

"We have had the oil in on the large kilns for about a year and our experience gained over that period indicates that oil is much more satisfactory in every respect, and of course, our saggars will last longer using oil as a fuel, than as compared with using coal as a fuel."

"The Steubenville Pottery Co.,
H. D. Wintringer, Pres."

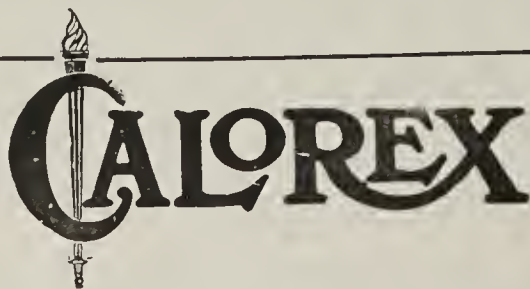
Let our Engineering Department show you how "BEST" Burners will cut down your burning time, increase production, etc. No obligation. Ask for catalog.

W. N. BEST FURNACE & BURNER CORPORATION

Engineers in Caloric

11 Broadway

NEW YORK



The Fairbanks Steam Shovel Company manufacture all parts that go into this shovel in their modern plant at Marion and maintain a very enviable reputation for service to their users at all times.

Their new circular K-16 shows the merits of this equipment for the brick and clay industry. Copy will be gladly mailed to interested parties upon request. The company will be represented at the Cleveland Conventions in February.

* * *

The many friends of J. J. Gledhill, who was formerly with E. M. Freese & Co., of Galion, Ohio, will be pleased to learn that Mr. Gledhill has resumed his activities with that company, and is again devoting his time and attention to their interests in the western territory. Mr. Gledhill is a man of wide experience in the industry, and many of those having plant problems will undoubtedly take advantage of the opportunity which this presents to get in touch with him at 308 Bush St., San Francisco, Calif.

* * *

The Bucyrus Company, South Milwaukee, Wisconsin, announces the addition to their sales force of John J. Gault, Asso. Mem., A. S. C. E.

Mr. Gault has had many years of experience as construction and locating engineer, having been assistant engineer on the Chicago and Northwestern, engineer maintenance of way on the Chicago and Alton, construction engineer for the United Fruit Co., and assistant engineer on the Chicago, Milwaukee & St. Paul. His last connection was with the International Harvester Company as locating engineer on a railroad project.

He will be attached to the Chicago office of the Bucyrus Company at 622 McCormick Building, Chicago, Ill.

* * *

Early in 1922 Brookville Truck & Tractor Co., Brookville, Pa., arranged for Alsdorf Corporation, Chicago, to act as their foreign representative. They felt this company was particularly fitted to act in this capacity as the president, A. L. Alsdorf, had spent many years in the Orient and other countries, and therefore, was thoroly familiar with their customs and needs.

An intensive selling campaign started by the Alsdorf Corporation, covering Brookville equipment, has already resulted in several initial orders from Japan, etc. It is anticipated that the efforts made by this wide awake and aggressive firm will result in a heavy volume of export business.



Link-Belt Company announce that their 1923 calendar will be ready for distribution shortly, and that copies can be obtained by addressing a request to their Chicago office, 910 South Michigan Ave., on the letterhead of your firm.

This calendar, which measures 15½ x 24 in., contains twelve separate full sheets, each sheet having an attractive illustration of Link-Belt machinery and equipment, a convenient feature being the showing of the previous month and the succeeding month below each month's large calendar.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

(The Slogan Selected Will Appear Here)

(The opinion of our readers, expressing the purpose and spirit of this publication)

Why Association Work Is Worth While

MODERN BUSINESS, because of its many ramifications and angles is vastly more complicated than that which our great grandfathers conducted many years ago. Therefore it is only natural that business must be conducted differently now. One of the activities which modern business has made absolutely essential is the association of men in certain industries or its branches.

There are many manufacturers, especially in the clay industry who either do not or will not see the advantages of association work, mainly because they have not been convinced that it is of sufficient benefit to them. It is not always easy to point to any definite and particular service which an association has rendered its industry because so many of its activities bring intangible rather than concrete results.

Once in a while, however, something is accomplished which stands out so evidently as an achievement which could only have been accomplished by the force of an association of business men and which would have been beyond the scope of any one individual, that it leaves no doubt of the value of association work. Something of this nature two of the prominent associations in the clay products industry, the Common Brick Manufacturers' Association and the Hollow Building Tile Association, have accomplished in their work in assisting the committee which has drafted a building code recommending minimum requirements for small dwelling construction. In this code, which has behind it the force of the approval of the country's prominent engineers and architects, the Common Brick Manufacturers' Association has succeeded in having the eight-inch brick wall approved as good construction for small dwellings. The 12-inch wall in small houses is something the industry has had to contend with for years and years and has lost a tremendous amount of business because of the additional cost involved.

Similarly, the code recommends that in walls not exceeding 30 feet the uppermost 20 may be built eight inches thick of hollow tile while the bottom ten feet may be either 10 or 12 inches

thick. This gives hollow tile a much better opportunity to take from frame much of the popularity it now enjoys.

Both the common brick and hollow tile associations have done splendid work in bringing their industries to a higher plane and increasing their markets. But had both of them never accomplished a single thing but just this recommended revision in the building requirements of small dwellings, it would still have been altogether worthwhile for the manufacturers who thru their support have made the associations' work possible.

Brick Keeps Faith With the Public

IN THE EARLY SUMMER of 1922, Brick & Clay Record repeatedly urged that the prices of clay products be kept down as low as possible consistent with a fair profit, and irrespective of the demand which existed and which would probably make it easy to get higher prices. These recommendations were endorsed by prominent clay-products manufacturers who wrote us their views regarding the raising of prices.

How well the industry has followed this advice and kept faith with the public is clearly shown by the following paragraph taken from Edwin J. Brunner's "Building Prospects for 1923." Mr. Brunner, who is editor of the American Contractor, says, "brick is the only material which stands lower during the last quarter of this year than it was during the last quarter of last year. Cement is 92.8 per cent., whereas, it closed last year at 90 per cent. Steel closes this year at 97.9 per cent., whereas, it closed last year at 76. Lumber closes at 127.5, whereas, at the close of last year it was only 102."

Brick, Mr. Brunner says, closed at 89.5 per cent., while last year it was close to 100.

This means that the industry has kept faith with the public in stabilizing prices. The result has been increased confidence of the public in brick and a greater volume of brick-building construction than in probably any other previous year.

Prices should always bear a judicious relationship to costs, and it is a bad policy to raise prices temporarily simply because a great demand makes it possible to obtain a higher price. Determine what your cost is; add to that a fair profit and make this total the selling price of your brick. This is an infinitely better policy than that of charging what the traffic will bear.

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The American Ceramic Society—A Remarkable Institution

ANDREW CARNEGIE once said, "Every business can be made successful if it supplies some essential want of the community." The truth of this statement has been demonstrated time and again.

A graphic demonstration of this is offered in the case of the American Ceramic Society, the biggest of the associations in the ceramic industry. In 1898 a handful of men came together and formed the nucleus of an association whose work was to be devoted to technical problems and discussions only. From a beginning of 20 charter members, this association in 25 years grew until now there are on its roster approximately 1,700 men who are interested in all the various branches of ceramics. All questions such as "is the association worth while," or, "does it fill a need in the industry" can best be answered by simply pointing to this phenomenal growth in membership.

With the increase in membership, the value and scope of the society has also progressed. It is now a powerful and influential organization whose opinions are authority on things ceramic. Its annual convention draws together the most prominent ceramists in the country who come to discuss the industry's progress.

This year, the American Ceramic Society will hold what will probably be the biggest meeting in its history—the Silver Jubilee Convention. This meeting will be held at Pittsburgh, February 12 to 16, and if you need to be convinced of the worth of this association, attend the Silver Jubilee Convention.

Convention Shows Association's Worth

Fifth Annual Convention Most Enthusiastic in Hollow Building Tile Association's History—Will Increase Advertising Campaign—Manufacturers Discuss Plant Problems

WHAT was undoubtedly one of the most interesting meetings ever held by the Hollow Building Tile Association was called at the Drake Hotel, Chicago, January 25 and 26. Some 58 manufacturers of hollow tile were present and engaged in animated discussions regarding problems which are close to the heart and pocketbook of the plant operator.

There was entirely absent from the sessions that formal and stiff atmosphere which makes the delegates hesitant to bring before the meeting problems regarding manufacturing, marketing, shipping, and so forth. The result was that those who attended the meetings came away with a feeling that it was the best convention they had ever attended.

Owing to the temporary illness of the president, J. T. Howington, the vice-president, William Hutton, Jr., occupied the chair. Later in the day a message of condolence was sent to Mr. Howington, and he replied showing his continued interest in the welfare of the association.

Association Well Off Financially

The reports of the treasurer, of the finance committee and of the secretary showed the association to be in a very flourishing, prosperous and growing condition.

J. S. Sleeper, secretary, in his report reviewed the activities of the association and told of the progress which had been made during the past year. The main activity of the association—advertising—was not pushed as much as in previous years, but it is hoped that this year it will again be a prominent activity. One of the biggest forward steps, as revealed by the secretary's report, is the establishing of groups and group representatives.

The report of the membership committee showed that 42 new members had been received during the last year and that the membership at the time of the report manufactured 60 per cent. of the total hollow tile output of the country, as reported by the government. Later during the meeting two additional members were signed up and it was stated that memberships have been promised from other companies that would bring the representation up to 80 per cent. of the total production of the country.

Introduce Group Representatives

Part of the credit for this increase is due to the directors as well as to the membership committee. There was a series

of letters, fourteen in all, sent to prospects one week apart, each calling attention to a different phase of benefit of the association's work. Some of these letters were sent by the directors who are not members of the membership committee.

During the first morning session, also, the five group representatives were introduced and made short talks. These are W. S. Elton, E. C. Bacon, W. W. Montgomery, W. S. Roberts, and M. B. Reilly. Each told of his experience in and plans for helping the group with which he is connected. J. J. Cermak and F. J. Huse were also introduced. The former assembles and issues the news bulletin service of the organization and the latter is the chief engineer.

A resolution was also passed expressing appreciation of the services of E. R. Sturtevant as secretary of the association for the larger part of the year.

Hale Tells of Freight Rates Battles

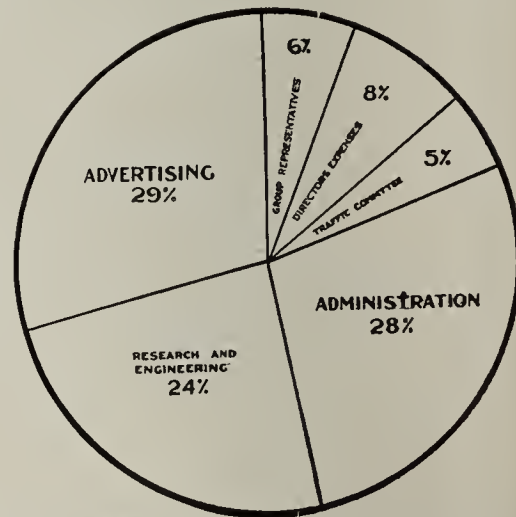
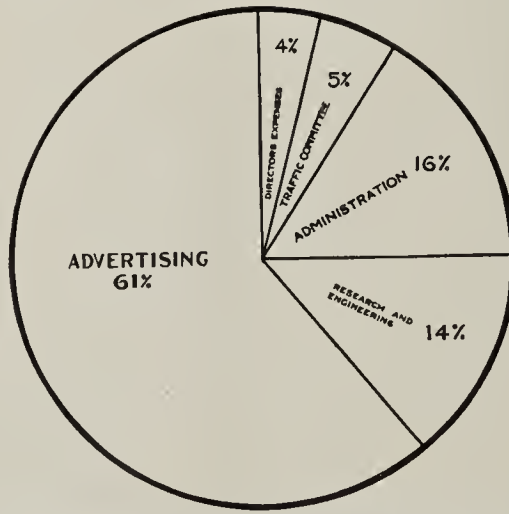
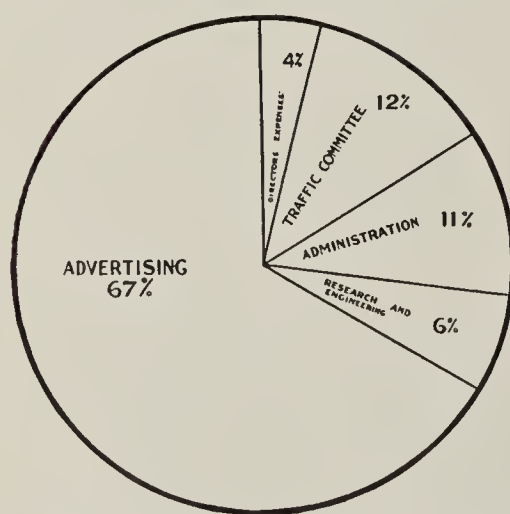
Following an excellent luncheon the discussions were opened by F. R. Hale, Vigo American Clay Co., Terre Haute, Ind., chairman of the Traffic Committee. Mr. Hale gave in detail the activities of the committee and stated that although some important victories have been won, especially in obtaining a uniform classification for clay products, the freight rates question is far from being settled. The uniform classification means a great deal to the hollow tile manufacturer and was worth the time and money spent in securing it. At present common brick has an advantage over tile on hauls of 150 miles or over, but it is hoped that this will be equalized soon.

W. M. Councill, National Fireproofing Co., Pittsburgh, Pa., followed Mr. Hale and spoke on the Elimination of the Kelly Combination Rule. The original adoption of this rule and the later adoption of thru rates when this combination rule was eliminated resulted in a saving of 40 cents a ton to all shippers of hollow tile. This means \$12 on a 30-ton car. For this the freight rate committee has fought for two years and there is no reason why it should not be had for all time.

New Loading Rules for Tile

Claims for Overcharge, Loss and Damage were discussed by J. A. Dailey, Shale Hill Brick & Tile Co., Chillicothe, Mo., who told of the methods employed by him in following and collecting claims.

C. W. Dixon, of the Columbus (Ga.) Brick & Tile Co., gave



These Three Charts Show the Division of the Hollow Building Tile Association's Expenses During the Years 1920, 1921 and 1922. Note How the Advertising Appropriation Has Steadily Dwindled.

a very instructive talk, in which he explained the new loading rules which the hollow tile manufacturer must now observe in shipping his product. Hollow tile must be loaded in the cars with cells running horizontally and lengthwise with the car. The load must be so distributed that it will come flush with the sides of the car to prevent any movement of the load in transit. Load with staggered joints if necessary to take up any voids at sides of car. Doorways must be boarded so that the tile are secure. These rules have been adopted by a number of the important freight associations and, in order to

tion has curtailed its advertising tremendously, but it is hoped that this activity will again be resumed to a greater degree. Instead of concentrating its publicity efforts in magazines of national circulation and others the association has decided to adopt a campaign of direct-by-mail advertising. To insure the success of this plan an expert in this branch of advertising has been engaged, who is working up literature which will be used to broadcast the message of hollow tile.

Other branches of the association's advertising activity will be enlarged, especially the departments which now come

under the head of service, for instance, the plan service. During the discussion following Mr. Payne's report it was suggested that the plan service be greatly enlarged and more designs added to the list which the association now has. H. R. Straight suggested that a book of floor plans and house designs be gotten out showing a large number of designs. These would not be complete working drawings, but would be sufficiently elaborate to give the prospect a good opportunity to select a design which, both in floor plan and exterior, would suit his taste.

Get 71,900 Inquiries

An Analysis of Advertising Returns was given by V. L. Yepsen, Anness & Potter Fire Clay Co., Woodbridge, N. J. Mr. Yepsen stated that about 71,900 inquiries have been received, which have been classified as follows:

- 47,802 to Consumers
- 10,514 to Contractors and Builders
- 11,215 to Agriculture
- 2,371 to Architect and Engineer

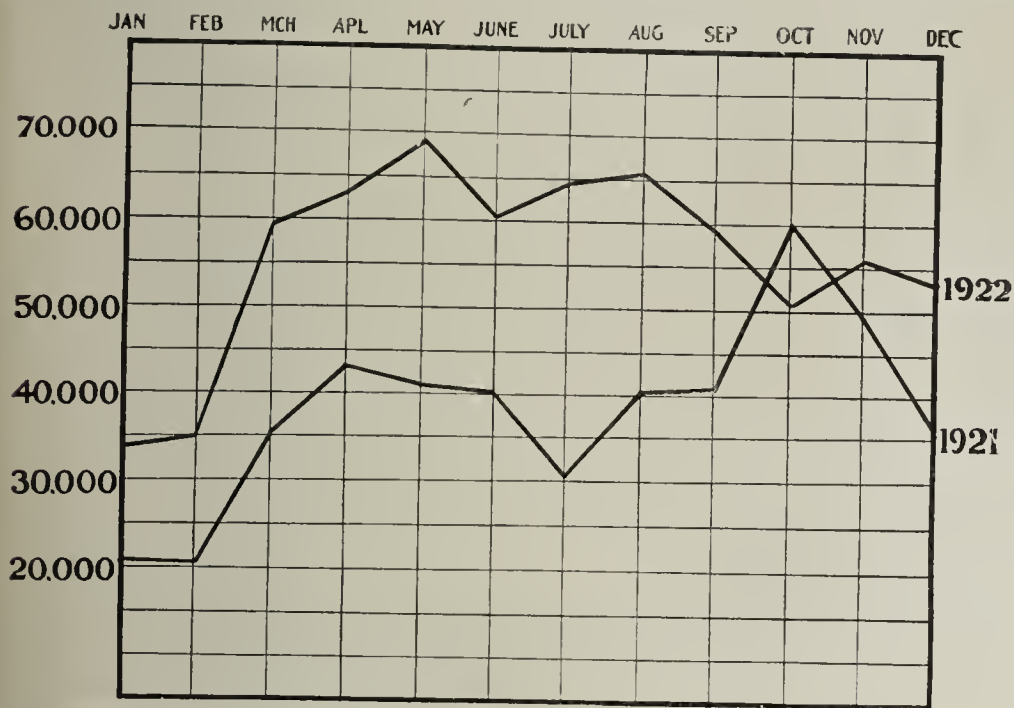
Mr. Yepsen also spoke on the Effect of Advertising Seen on the Firing Line. This advertising which the association is doing, Mr. Yepsen said, is paving the way for the salesman and making it unnecessary for him to do the so-called missionary work; that is, teaching the prospect about hollow tile and its many and varied uses. The advertising answers many of the questions regarding the adaptability of hollow tile to construction purposes and teaches the correct use of this material for the purposes to which it is adapted. Advertising, Mr. Yepsen said, is the only direct and sensible way to reach people who want to build.

How to Follow Inquiries

Following Association Inquiries was the subject discussed by C. W. Dixon, Columbus (Ga.) Brick & Tile Co. This company has a man who follows up all inquiries sent by the association. Mr. Dixon stated that their salesmen never consider such a prospect dead until the prospect actually has died. Prospects are also followed up by letter and for this purpose four successive letters are used. If the first fails to bring results, another is sent and so forth. The unresponsive prospects are given a rest for six weeks or more and then they are again tackled. By this policy of persistent following up of association inquiries much business has been sold that would otherwise have gone to frame or some other form of construction. This is one of the ways in which the tile man can cash in directly on the association's work.

On Selling Thru Dealer

In speaking on Advertising for Dealer Cooperation, R. G. Wallace, National Fireproofing Co., Pittsburgh, Pa., stated that the dealer is selling building materials because he is rendering real service to the community which he serves. Because his whole business is selling and he is equipped to do so, the dealer can in reality market a product cheaper than the manufacturer can himself. To get the most out of your dealer it is necessary to sell him on the value of carrying a



Comparison of the Tonnage Production of 28 Plants Between the Years 1921 and 1922.

have any recourse when the shipment is damaged in transit, these rules should be complied with. In Mr. Dixon's opinion the adoption of these rules has helped to bring about the uniform classification of clay products.

By complying with the loading rules prescribed by the freight associations the shipper and consignee is relieved of much of the nuisance of breakage and the resultant work in collecting damages.

How to Get Cars

The next speaker, Grover C. Galvin, Rockford (Ia.) Brick & Tile Co., told of Securing Equipment During Car Shortages. Since the strike on the Rock Island Railroad has not been definitely settled, many plants in Iowa have had to do considerable work to obtain cars when they were needed. Mr. Galvin stated that it was necessary for them to be constantly getting after the freight agent in the territory, or to see the chief clerk to secure their proper share of the available cars. It has been necessary, Mr. Galvin said, to make many trips to Chicago to see the chief clerk of the Rock Island in regard to cars. In this way the Rockford Brick & Tile Co. has accomplished much and been able to ship fairly consistently.

Mr. Galvin also called attention to the effect the general brick case decision has on Iowa manufacturers. The benefit accruing to Iowa plants, he said, was the establishment of a uniform brick list for all time. Outside of that Iowa really was injured, because Illinois manufacturers obtained a lower rate on shipments into Wisconsin. The 60,000-pound minimum which is soon to be effected will also be bad for Iowa manufacturers, Mr. Galvin pointed out, because so much of the material is sold to farmers in comparatively small lots, the farmers finding it difficult to handle a full carload of tile. This, therefore, is in effect an increase in rates.

To Do Direct-by-Mail Advertising

J. H. Payne, chairman of the Advertising Committee gave a report of the general activities of that body. The associa-

hollow tile stock. Convince him that he can turn a stock of hollow tile as quickly and just as profitably as any other building materials. If you have dealers handling your product get back of them and help them to sell. The dealer can be reached thru trade papers, circulars and other media by the manufacturer who wants to market his product in this way.

The dealer is no different than any other salesman and likes to travel the highway made smooth for him by the manufacturer, said Mr. Wallace. One way in which the dealer can be helped is by turning over to him the prospects which the manufacturer digs up.

Wants Association to Have More Plans

In smaller towns it is the carpenter contractor who draws the plans for new houses, said J. J. Amos, Humboldt (Kan.) Brick & Tile Co., in speaking on Advertising to Owners—Plan Service. He suggested that the number of plans which the association has be doubled or tripled. One of the chief competitors of hollow tile, Mr. Amos pointed out, is metal lumber, and this product cuts into the hollow tile market chiefly because it is so widely advertised. Substitutes for hollow tile employ engineers who will work with architects and contractors in designing buildings with their materials.

In the discussion which followed H. R. Straight, of the Adel (Ia.) Clay Products Co., suggested that the association start a campaign of education in the proper use of hollow tile in construction. M. M. Morrow, of the Nelsonville Brick Co., Columbus, Ohio, stated, as his opinion that the contractor ought to be gotten after, as he is not in all cases favorably disposed toward hollow tile construction. This is one of the reasons why, Mr. Morrow said, so much floor construction goes to other materials besides tile.

Work on Standards Reviewed

This discussion completed the afternoon session for Thursday and the meeting was adjourned until 10 a. m., Friday, January 26. H. R. Straight, Adel (Ia.) Clay Products Co., opened the discussions with a report of the General Activities of the Standards Committee, of which he is chairman. The work of the Standards Committee has been in progress for three years, and in this time many varieties of tile from various parts of the country have been tested to determine their strength, porosity and fire-resistiveness. These tests have brought out some surprising things. In a later talk Mr. Straight gave more complete information regarding these hollow tile tests.

Tile Favored in National Code

P. H. Bevier, National Fireproofing Co., New York City, gave an exceedingly interesting talk on the National Building Code, which has just been published. This is the code which has been composed under the direction of the Department of Commerce and contains recommended practices of building construction. The code covers 18 pages of type, of which two are devoted to hollow tile. Hollow tile in many ways is given a fairer opportunity to compete with other materials, especially in small house construction. In this type of construction the top 20 feet of a 20-foot wall may be 8 inches in width, and below that it is optional, giving the builder an opportunity to use ten-inch instead of twelve-inch walls. Hollow tile was allowed less latitude than brick because the material is more variable. In the survey preliminary to the formulating of this code reports from 48 cities out of 52 considered hollow tile the equal of brick.

Regarding the Ideal Wall, altho the tests which this type

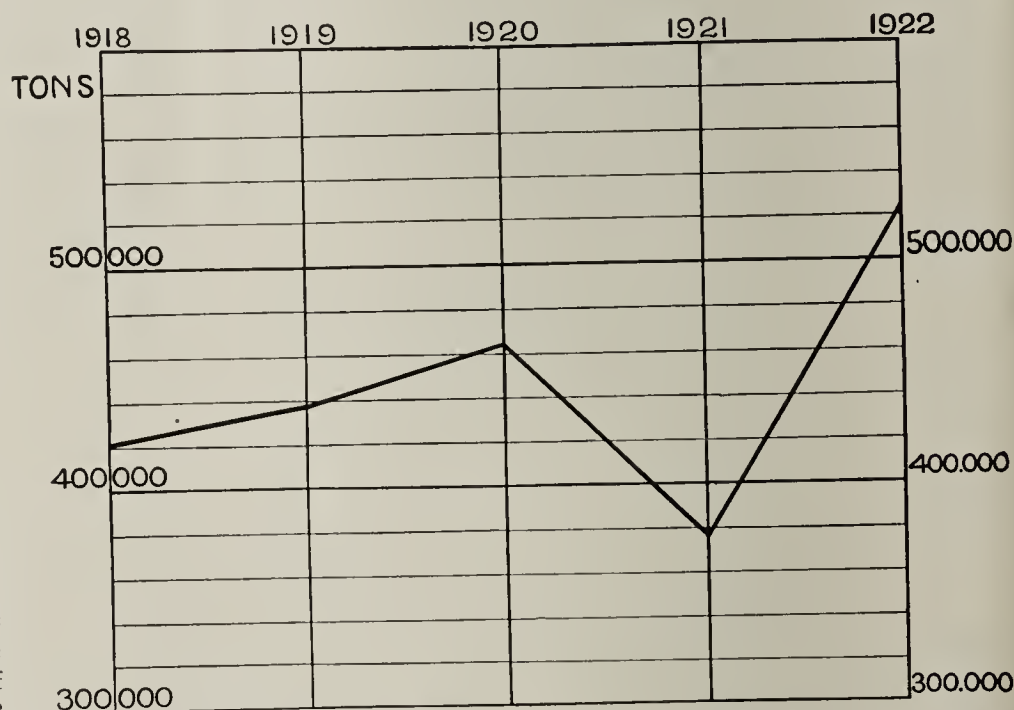
of construction underwent were satisfactory, the code-makers were not quite satisfied that it was the equivalent of either tile or solid brick. Isolated tile columns, when unprotected, must be filled solid with concrete. The average compressive strength permitted on tile laid on end is 1,200 pounds per square inch and if laid horizontally can be loaded to 700 pounds per square inch. The specifications for absorption of hollow tile can not be made definite, it was found, for the reason that there is apparently no relation between the strength and the percentage of absorption. The code provides for partition walls of hollow tile to be thicker than solid walls.

Copies of the code can be obtained by writing the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 15 cents.

Weight of Tile Should Be Standard

An extremely interesting talk, illustrated with lantern slides, was made by H. C. Downer, of the Malvern (Ohio) Fire Clay Co., who spoke on the advantages of a standard weight for all tile. The weight of a tile has a direct bearing on its strength, it has been established, and therefore a standard weight would help to establish uniform quality. Mr. Downer strongly advocated a strict adherence to the 45-55 per cent. ratio—that is, 45 per cent. material and 55 per cent. voids—and showed instances where tile that had a higher percentage of voids than 55 failed to measure up to requirements.

Mr. Downer also connected the question of weight with that of safe shipping and mentioned the fact that if tile are made of the proper strength and thickness and loaded in the cars correctly there will be no breakage to worry about. As proof of his contention Mr. Downer cited an instance where his company had shipped 100 cars without a single claim for breakage.



This Curve Shows the Gain in Tonnage Production Made in Five Years on Ten Plants.

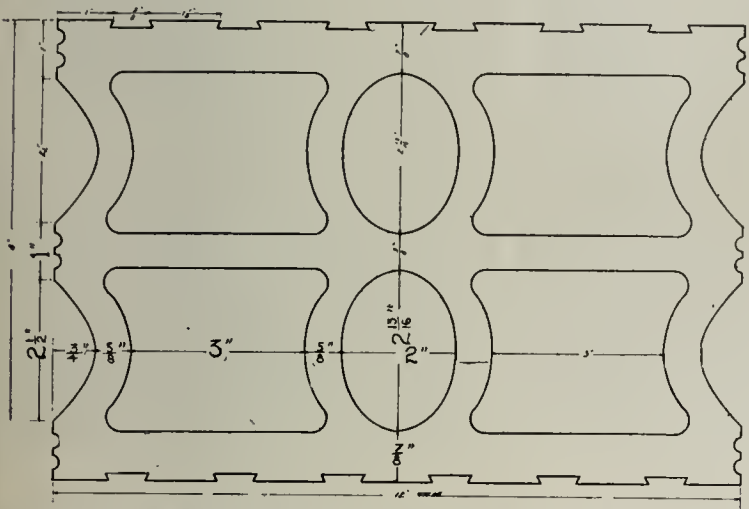
Simplification Work Discussed

Mr. Downer was followed by M. M. Morrow, of the Nelsonville Brick Co., Columbus, Ohio, who talked on the simplification program. Mr. Morrow called attention to the questionnaire which has been sent to all hollow tile manufacturers and urged that it be filled and returned. With this data the Hollow Building Tile Association could advance with the work of standardization and simplification, and eliminate those varieties which are superfluous and serve no definite need.

During the discussion V. L. Yepsen, Anness & Potter Fire Clay Co., stated that his company has eliminated the six-cell loadbearing tile and is making only the nine-cell tile. Where orders have come in for the six-cell tile the customer has generally been persuaded to use the nine-cell. Some of the sizes in partition tile have also been eliminated.

Keasbey Doubtful About Simplification

H. M. Keasbey, president of the National Fireproofing Co., stated that in his opinion the partition tile might be simplified and some of the sizes eliminated, but he did not believe it was possible to extend the work of simplification to floor



This Tile Has Been Designed with a View to Minimizing the Internal Strains and Stresses Caused by Expansion and Contraction. It Has Not as Yet Been Manufactured and Therefore Its Possibilities Are Not Known. Overall Dimensions Are 8x12x12 Inches.

tile. Mr. Keasbey said he did not believe that the manufacturers had come to a point where they could refuse to furnish certain sizes of tile which the architects demanded.

Wm. Hutton, Jr., of the Troy (N. Y.) Fireproofing Co., speaking on state and city building codes, said that if any of the hollow tile manufacturers now live in cities where there are no building codes, they should get the local Chamber of Commerce or other influential organizations to back the movement for the establishment of a building code.

Results of Fire Tests

In a talk illustrated by lantern slides H. R. Straight told of the results obtained in the fire-resistance studies at the Bureau of Standards. Data obtained from these tests has been rather difficult to analyze, but it was definitely established that tile burned close to the vitrification range withstand fire better than others. It was also determined that the scorings in tile walls should not be deeper than absolutely necessary.

The Bureau of Standards is conducting another series of tests in which square panels will be used with side constraint. The tests seemed to indicate that the best plaster was that composed of three parts cement, four parts lime and four parts sand. Many of the failures which occurred in the tests were due to internal expansion and contraction, and in an effort to eliminate this danger a new tile has been designed, which will be experimented with. The tile is shown in a sketch in this article.

The meeting then adjourned for luncheon at the Drake, at which the delegates were the guests of the association the same as the first day.

Bureau of Mines Steps Out of Research Work

The general report of the Plant Operating Committee was read by J. J. Amos, of the Humboldt (Kan.) Brick & Tile Co., chairman. Mr. Amos read the report of the research committee, which was under the direction of R. T. Stull and which tested a number of kilns. This report was read at last year's meeting and has been reported in these columns

before. In every instance when the research crew took hold of a kiln it was burned off at a tremendous saving in fuel and time and an increase in the production of No. 1 ware.

The activities of the Bureau of Mines in connection with this research work of the clay industry has now come to an end and no more funds are forthcoming from that branch of the government for the continuance of this work. There is now no money available for research except that contributed by the four big clay associations. The work in the future will be handled thru the Bureau of Standards and that body has expressed a willingness to continue it. It is necessary, however, to secure an appropriation from Congress to this end and Mr. Amos urged that every manufacturer bring to bear all the pressure he can on his congressman that this research may continue.

Unlimited Possibilities in Research

The committee has only begun its investigations, Mr. Amos pointed out, but already it is apparent that the possibilities of more economical production methods are almost unlimited and that research work will bring out new methods and new uses for clay products.

Following J. J. Amos' report, an interesting discussion was started by H. R. Straight, who mentioned some of the dryer problems which are encountered in the daily routine of the plant. He stated that in his opinion the steam dryer is best for those plants that do not have electric power available. Where power can be had the waste heat method is probably the most economical. When using waste heat, Mr. Straight said, a 15-horsepower motor will ordinarily handle a 20-track dryer. His company is now working on an automatic humidity control which will stabilize the atmospheric conditions in the dryer.

Hollow Tile Men Look for Good Year

As a wind-up of the most interesting meeting which the Hollow Building Tile Association has ever held, manufacturers from the various groups told of conditions and outlook in their territory. Without exception a better year was predicted, with business good at least until late summer. The coal situation as a whole is satisfactory and cars also are available in sufficient quantities in most instances.

In recognition of the splendid work which the present administration did during the past year the officers were reelected to serve for the ensuing year. They are: James T. Howington, Coral Ridge Clay Products Co., Louisville, Ky., president; Wm. Hutton, Jr., Troy (N. Y.) Fireproofing Co., vice-president, and H. C. Downer, Malvern (Ohio) Fire Clay Co., treasurer.

Directors Elected

Directors for the year are: H. M. Keasbey, National Fireproofing Co., Pittsburgh, Pa.; T. J. Neiswanger, Standard Clay Products Co., Oskaloosa, Ia.; Wm. Hutton, Jr., Troy (N. Y.) Fireproofing Co.; H. E. Taylor, Kankakee (Ill.) Tile & Brick Co.; J. A. Dailey, Shale Hill Brick & Tile Co., Chillicothe, Mo.; C. W. Dixon, Columbus (Ga.) Brick & Tile Co., and R. G. Wallace, National Fireproofing Co., Pittsburgh, Pa.

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DENIES APPROVAL TO NEW TARIFFS

Approval to tariffs ignoring Section 4 of the Interstate Commerce Commission act, filed by the Wabash on lumber from Kansas City to points on the Chicago & Northwestern, on brick and tile between points in Missouri and Iowa, and rates on classes between Ottumwa, Ia., and Chillicothe, Mo., was denied recently. Like action was filed by the Frisco railroad on glass and glassware between points of Arkansas, Missouri, Kansas and Oklahoma to various points in Western Trunk Line territory.

These Judges Will Decide



EDWARD E. DUFF
Secretary National Paving Brick Manufacturers' Association.



F. W. DONAHOE
Secretary Refractories Manufacturers' Association.



GEO. C. D. LENTZ
Secretary Clay Products Association.

ALTHO it was our wish to announce in this issue of Brick & Clay Record the winners in the \$200 prize slogan contest which has been conducted during the last two months, response from the industry to this contest was so tremendous that it was impossible to come to a decision at this time. 355 slogans were received carrying practically as many different ideas. Altho Brick & Clay Record expected a goodly response from its friends, we did not believe that the contest would be so enthusiastically entered into and that our friends had so many good things to say about the paper. The response also took the judges by surprise, and the 355 slogans contained so many ideas of excellent worth that it is a task of no mean proportions to select the best ones.

The February 20 issue of Brick & Clay Record will carry a complete announcement of the winners and their slogans. Watch for your name among the list of prize winners. Below are reprinted the slogans from which the prize winners will be picked. They are conclusive evidence that the judges have no easy task.

True facts and figures.
The Gibraltar of the clay world.
A boon to the honest manufacturer.
The grand old paper of the industry.
Higher standards of clay products "manufacturing."
Dedicated to the clay products industry.
Boosts brick; cultivates cooperation; reliable reading.
The foundation and success of the clay manufacturing industry of the past, and the guiding star of the future.
Bigger and better every year.
A clayworker's journal generating truthful opinion.
The expounder of constructive ideas.
Each issue a milestone of accomplishment.
The pulse of the clayworking industry.
A forum of constructive ideas and practice.
The clayworker's Bible.
The official mouthpiece of the Ceramic Industry.
The journalistic bridge connecting the clayworker's ideas with those of the executive.
A medium of cooperation and constructive ideas.
30 years of good will.
30 years of achievement and satisfactory service.
A partner to every successful brick and clay man.
A source of new ideas and unbiased conclusions.
A magazine of results.
A keystone in your business.
The axis of the clayworking industry.
The magazine which is a part of every brick and clay man's life.
30 years of faithful service to the clay industry.

The guide of health in the clay plant.
The breviary of the clay manufacturer.
The progressive magazine for the clayworker.
The "St. Bernard" of the ceramists in trouble.
The scout of the great ceramic army.
The forum of ceramic industrial progress.
The clearing house of ceramic industrial policies, methods, and accomplishment.

The clay craft's modern Moses.
Our modern Moses.
The clayworkers' encyclopedia.
The clay craft's fountain of wisdom.
The champion of knowledge and rectitude.
The inspiration of the clayworker.
The clay craft's guiding spirit.
The best and cheapest reference.
Eminently practical and progressive.
Tells what to do, how to do it, and when to do it.
The pathfinder of the industry.
Clay products manufacturers' standby.
Up-to-date clay manufacturers' guide.
Universal guide to brick and clay manufacturers.
The clayworkers' cooperative information bureau.
Where you will find a solution to your problems.
We serve the brick and clayworkers.
Our experiences are yours.
The clay industry's champion.
The clay industry's champion and guide.
The king of clay workers' journals.
Supreme in brick and clay industry.
The great informer to brick and clay industry.
For the good of the industry.
The tie that binds and the light that guides our industry.
The clayman's logical guide.
A constant urge to improvement for clay manufacturers.
The "keel" of the great clay industry.
Clay products' apostle of progress.
Herald of the perfection and beauty of clay.
Veni, vidi, vinci.
The beacon in the field.
The sentinel at the kiln.
Always in the know.
Summary of activities.
Tide of clay affairs.
The agent of progress.
Analytical survey.
Astute observer.
With its vision of the field.
Impressions of manufacture.
A competent authority.
Acting in advisory capacity.
Allied with the manufacturer.
The journal of the clay worker.
Analytical and critical.
Comprehensive and active.
The symbol of progress.
The Brick and Clay Record of manufacture and sales.
Brightest and clearest reference obtainable.
Beautiful and concise referendum.
Business and conclusive reasoner.
Achieve steady progress.

Watch for Your Name Among the Winners.

The Fate of Your Slogan



J. S. SLEEPER

Secretary Hollow Building Tile Association.



R. D. T. HOLLOWELL

Secretary American Face Brick Association.



RALPH P. STODDARD

Secretary Common Brick Manufacturers' Association.

The combined progress.
Forward march.
The standard authority on burned clay.
The nugget of the clay industry.
Champion of an age-old industry, presenting modern progress.
Not abreast, but a step ahead.
Not theory, or fiction, but concrete facts necessary to success.
As necessary as moisture to the clay.
When God made man he made him out of clay.
'Twas the best material he had and he knew it would stay.
When he put in the back-bone he used a 'streak o' shale,
A runnin' from the thinking box down to the tail.
Now, if God used clay of which to build a man,
Man should build of Brick and help along the plan;
And to make sure the job is well worth while,
Use nothing for a house or farm, but brick and tile.
Market champion, "build with brick."
The clayworker's friend and advisor.
Price, quality, service, a square deal.
Guardian angel, boosting brick.
Brick and Clay Record has made a brick and clay record.
Gives clay products its very best.
Service—that's how it's done.
Cooperative partner, helps all.
Alert, ever-ready for action.
Reaches all ways for all, plant equipment, plant problems,
and market assistance.
Information, learn.
A helper all the way thru.
It works while you sleep.
30 years, O. K. Some brick.
Stop! consider brick.
We are using "brick" more and more each day in every way.
He that has eyes to see, let him see. Build with "Brick."
He that hath ears to hear, let him hear. Build with "Brick."
The word has gone forth, "Build with Brick."
"Clay Record" shows how to build with brick.
Use "Clay Record" it shows the way.
A veteran of 30 years, "Clay Record."
When in doubt use brick.
Eventually! Why not now, brick?
A standard information bureau for the clay plant man.
The powerful chain in the building industry—clay manufacturer—building material director—contractor—clay machinery manufacturer.
To live and to serve.
The light of the industry.
The industry's big brother.
Round table of the clay industry.
Melting pot of the clay industry.
The dry-pan, screen and pug mill of ceramics.
The die of the ceramic industry.
Practical policies, practice and prices.
Better your business by reading the record.
All a good clay journal should be.
BRICK—"Bought right and built right are permanent"—
BUILDINGS.
Dedicated to progress in the clay industry.
Defining essentials, broad in scope, guaranteeing better product at less cost; a safer market and increased profits.
Brick and Clay Record—is "our beacon light."

What to do and how to do it from the clay bank to profit-taking.
A clearing house absolutely essential in every successful enterprise.
Bringing the clay industry from a state of chaos to nationwide success and profit.
Gives a "college" education in clay literature and tells you how to apply it.
Blazes the way for brick and clay.
It covers the field.
Thirty years championing the clay products cause.
Thirty-year prescriber for its subscribers.
The champion "eternable" of a product non-burnable.
"Brick burners' bible" (Alliterative "B").
If you do not know you need it, you need it more than you know.
An investment—not an expense.
Holds your interest—pays you interest.
Pays more than it costs.
Read the record and better your business.
Go to the Brick and Clay Record thou "bricker," consider its way and be wise!
Big brother to the brickmaker.
The leader, guardian, adviser, and guide of the clay industry.
The one big school for clay product manufacturers.
A mentor of modern methods.
A dependable developer of efficiency for producers in clay.
Brick and Clay Record—in fact as well as in name.
Knows no motive but service to manufacturer; acknowledges no criterion but success for consumer.
Is the poor man's friend; the rich man's ally.
Is the material for building prosperity.
Is the tie that binds manufacturer and builder.
Builds progress for manufacturer, contentment for consumer.
Helps all it serves, and serves all it helps.
Guide-post to prosperity for manufacturer and contentment to homebuilder.
Serves both producer and consumer by having the courage of its convictions.
Banner-bearer for the industry.
Exponent for justice to consumer and producer.
Reliable, progressive and courageous; with a single purpose of service to the clay industry.
Records progress.
Outstanding in its defense of the clay working industry, careful in its suggestions and unafraid of the truth.
Because it's a live paper, giving all the real news first.
It keeps in close touch with all branches of the clay industry.
Always promoting progressive ideas and trying to help the clay worker solve the many difficult problems that confront him.
It performs a real service to the clay industry of America.
The acme in ceramics in all its branches.
To your 30th anniversary of Brick and Clay Record—
"I have to say a friendly word.
You always worked hand in hand
With the clayworker thru the land;
In ups and downs and stormy weather
You always kept the crowd together.
So with a thankful heart we have to say
Go fearlessly your way,

Prize Winner will be Announced Next Issue

The clayworker's friend in need
 Cannot be beat."
 The master-mind of the clay manufacturing industry.
 The chord of harmony to the clay workers.
 Brick and Clay Record, the manufacturers say, is the leading
 clay journal of the world today.
 Keep it before you.
 A masterpiece of knowledge for the clay workers.
 Stands on its reputation and beyond comparison.
 To the clay manufacturer the Record is a beacon light.
 Without it he cannot hope to win the fight.
 The Record is wide awake, and always full of kick.
 Never has time to be long-faced, blue and pessimistic.
 For progress, and efficiency the Record takes a stand.
 It's the most practical clay journal in the land.
 Brick and Clay Record has always stood the test.
 Why? Because it always gives the best.
 The moulder of progress.
 The builder of progress.
 Get the pointer—Get the ideas—Brick and Clay Record—Get
 the knowledge—Get there.
 Source of knowledge from—Brick and Clay Record—gets
 results to success.
 The source of success.
 The clay workers' forum.
 The qualified clay workers' journal.
 A pathfinder for the clay products field.
 The ceramic post graduate.
 A dynamo that charges the clay products field.
 The silent partner.
 Past, present and future.
 The clay digest.
 The clay manufacturers' tribune.
 Delineator of truth in clay.
 Safeguard to the clay industry.
 The guide to better business.
 Bulld with Brick (and Clay Record.)
 Renders assistance thru cooperation.
 Manual of modern methods of merit.
 Paid us to be the best.
 A publication with a reputation for cooperation.
 Paves the way to success.
 BACR: The clay world's broadcasting station.
 Success Insurance.
 The pulse of the clay world.
 The clay world's press agent.
 Builds better business.
 A message of inspiration, every other week.
 Clay manufacturers' periscope.
 The seismograph of the clay world.
 The link between the manufacturers and the public.
 The time table to better business.
 The manufacturers' megaphone.
 If you succeed, we're bound too.
 The clay world's broadcasting station.
 Clay manufacturers—Brick and Clay—The Public—Record.
 Your partner.
 The paper with a purpose.
 Your own paper.
 Your watchman.
 Your smallest salaried employe.
 Foresight of the clay industry.
 An indispensable service to the clay world.
 The forerunner of progressiveness.
 What transportation is to commerce, Brick and Clay Record
 is to the clay industry.
 Brick and Clay Record is the bible of the clay industry.
 Counsellor and friend—that's what Brick and Clay Record is
 to the clay products industry.
 The alert intelligence service of the clay products industry.
 Where ideas meet and speak out loud.
 From clay pit to consumer the manufacturers' ally, the
 dealers' friend.
 If a man would make a better clay product let him study
 Brick and Clay Record.
 Keep an eye on your enemies, but keep a microscope to one
 eye and a telescope to the other when reading Brick and
 Clay Record if you would desire to keep abreast of the
 times.
 In times of stress Brick and Clay Record offers to its readers
 the guidance that the compass lends to the ship's captain.
 Your keystone of successful clay working is formed thru the
 thoughtful thinking of thoughts contained between the
 covers of Brick and Clay Record.
 Thru thoughtful thinking of thoughts in Brick and Clay
 Record, your success is molded.
 The thoro, thoughtful thinking of thoughts advanced by your
 magazine, the Brick and Clay Record, shapes your career
 as a clay worker.
 Thru thoro, thoughtful thinking of ideas brought out in Brick
 and Clay Record, your dividends are sure to be increased.
 Turn clay into gold dollars instead of red figures by reading
 Brick and Clay Record.
 Make it with clay.
 A guide post to the ceramic industry.
 Efficiency for the clay man.
 As lasting as burned clay—Our service to you.
 Your appreciation—Our standard of service.
 The beacon to all clay workers.
 Always consistent—Always on the job.
 The greatest factor for the bettering of the industry.
 It's a brick.
 A magazine full of powder, a sure hot shot.
 I saw it in the Brick.
 A piece of mail more welcomed than an order.
 A store house of information and inspiration.
 Clay products champion, defeating the fire demon.
 Champion of the clay products industry, foe of the fire demon.
 Advocating clay products, reducing fire loss.
 Increasing clay products, decreasing fire loss.
 Hitting the bull's eye in the clay products industry.
 The bond that binds the industry.
 Clay workers' ever-best-guide, counsellor and friend.
 Big brother to the clay worker.
 Chief counsel for the clay worker.

Consulting cousin to the clayworker.
 The Inspiration of the Clay Industry.
 The clay manufacturer's bible.
 The torch-bearer of the clay industries.
 Brick and Clay every fourteenth day, there is nothing for
 plant betterment any better.
 Day by day in every way, I am getting better and better.
 The encyclopedia of clay craft.
 Best brick and correct clay record.
 America's greatest journal for all, both big and small con-
 nected in clay working industries.
 The journal that has for 30 years been the first to help
 advance the clay manufacturing industry from its infancy
 to its highest pinnacle of the present time.
 The clay journal that helps to solve all your problems in
 clay working.
 Golden opportunities for all interested in the manufacturing
 of clay products.
 The ceramist's manual, guide, instructor.
 It is a "Brick" with a good "Record."
 It's like a letter from home.
 Contemporary text and guide of the clay industries.
 Guidance in ceramic progress.
 Progressive comment and fact in the clay industry.
 Ceramic problems, solutions, and news.
 The journal of the clay products industry.
 The advocate of greater progress and efficiency in the ceramic
 industry.
 The journal of prosperity for the progressive.
 Excavator-separator-conveyor.
 The gyroscope of the clay industry.
 The clearing house for clay products problems.
 Record of standards of efficiency and simplicity.
 A \$3.00 a year superintendent.
 It covers the field completely.
 The clay workers' al'ma-mater.
 Exponent of the American clay industry.
 The watch of the clay products industry.
 Just as essential as clay or shale.
 Just as essential as good clay.
 The clay products compass.
 The compass of the clay industry.
 The lead-horse of the clay industry.
 The pacemaker of the clay industry.
 The pathfinder of the clay industry.
 The best assistant for avoiding the pitfalls of the industry.
 The indispensable and most reliable guide of the clay industry.
 Its beneficial influence is felt by every piece of clay ware.
 The very best help toward improving all clay products.
 The best helper over the pitfalls and troubles of the industry.
 The leader towards better profits.
 The very best influence towards better profits.
 Greatly improves profits—The universal aim.
 Leads the way to better profits.
 The leader toward the universal aim—better profits.
 The clay industry's compass to better profits.
 The guardian of the clay products industry.
 The propeller to success and the life buoy to failure.
 The larger service rendered to the industry it represents.
 The mirror of the clay field.
 The mirror of clay industries.
 Devoted to progress—first and always.
 Indestructible facts of an indestructible product.
 The dictionary of clay industries.
 The clay information bureau.
 The knowledge of clays.
 Thoroughly burned ideas from the world's kilns of experience.
 The clay workers' guide.
 Alert and zealous to the best interest of the clay working
 industry.
 A leader, a friend, and a builder of clay.
 The torch that keeps the kiln fires burning.
 Of clay products—for clay products—by clay products leaders.
 Devoted to the clay industry's welfare.
 Keeps you in touch with every detail in the clay products
 industry.
 Up-to-date facts and thoughts of the clay world.
 The clay industry's inspiration, clearing house and laboratory
 of progressive ideas.
 Our creed is clay.
 Brick boosts brick.
 Every day in every way, we boost for clay.
 Exponents of clay in manufacturing and marketing.
 Encyclopedia of making and marketing of clay products.
 We trust in burned clay and boost it each day.
 Valiant champions of a worthy product—clay.
 Inspiration springs eternal from Brick and Clay Record.

Conventions in Prospect

February 8, 9 and 10—National Brick Manufac-
 turers' Association, Hotel Winton, Cleveland,
 Ohio.

February 12, 13, 14, 15, 16 and 17—American
 Ceramic Society, William Penn Hotel, Pitts-
 burgh, Pa.

February—Iowa Clay Products Manufacturers'
 Association, Des Moines, Ia. (Date Not Set.)

Predict \$5,116,544,000 Boom in 1923

PREDICTIONS on every hand point to an unprecedented building activity for the next eleven months. Some are merely optimism run amuck while others are based upon facts and figures that prophesy a remarkable program.

The most comprehensive summary of 1923 construction is contained in a "Building Survey for 1922 and Forecast for 1923" in the January issue of Architectural Forum, from which the following digest has been gleaned:

One year ago, thru reports from 955 architects' offices, the Architectural Forum made a prediction that construction work in 1922 would run to four billion dollars. Their estimation seemed very conservative at the close of the past twelve months when actual figures showed the total to mount well over the four billion mark.

\$5,116,544,000 for 1923

This year nearly twice as many architects have responded—exactly 1,767—dividing building work contemplated into 17 classifications. These reports give a total of \$1,650,498,000. From these actual reports the various amounts of building classified as to type and location given in the chart here (also reproduced from Architectural Forum) are derived and indicate the probable total value of new building for 1923 to be \$5,116,544,000. The figures in the chart were arrived at by taking the actual reports from the 1,767 architects and multiplying these totals by the index figure of 3.1. This index figure has been arrived at by a comparison of the reporting offices with all architectural offices as to volume and classification of work from data maintained on each architectural office in the country and filed in the Architects' Registry. This information, together with comparative percentages of construction work not controlled by architects as indicated, justifies the assumption of the index figure 3.1.

Believe Prices on Downward Trend

The slightly increased cost of building commodities during the past few weeks is believed to be just a wave in the general downward course of construction costs and that with renewed production activity and relief from the rail and coal situation costs will continue to go lower by Spring. It is also vitally important for every branch of the construction industry to

bear in mind that high prices will discourage some of this expected boom. The wise contractor, manufacturer and dealer will be content to make their profits on volume of turnover rather than out of a small business.

If a short-sighted policy is adopted by financial interests, manufacturers, labor and other factors, many builders may find good reasons for postponing their projects for a later period. In contrast with the opinion of James A. Wetmore, Acting Supervising Architect of the United States Government, that costs will decline for the next 18 months, the statement of the Associated General Contractors is given wherein it is claimed that building prices will continue to mount for the next 18 months. However, this forecast in the Architectural Forum maintains that costs will be reduced.

BUILDING TYPES	N. EASTERN STATES	N. ATLANTIC STATES	S. EASTERN STATES	S. WESTERN STATES	MIDDLE STATES	WESTERN STATES	U. S. A.
Dwellings (Under 20,000)	\$16,622,000	\$86,465,000	\$12,825,000	\$12,084,000	\$59,160,000	\$34,925,000	\$222,081,000
" (20,000 to 50,000)	11,668,000	41,828,000	8,587,000	10,552,000	33,468,000	12,757,000	118,860,000
" (Over 50,000)	6,045,000	27,481,000	7,031,000	6,113,000	21,077,000	10,444,000	73,191,000
Apartments	56,020,000	237,296,000	25,392,000	34,323,000	229,552,000	80,302,000	662,885,000
Hotels	33,589,000	141,146,000	27,683,000	40,765,000	205,332,000	60,475,000	508,989,000
Clubs, Fraternal, etc.	15,888,000	58,221,000	13,268,000	28,784,000	109,700,000	50,406,000	276,266,000
Churches	17,577,000	128,120,000	15,128,000	25,519,000	82,903,000	43,688,000	312,936,000
Community, Memorial	14,620,000	27,401,000	1,950,000	6,209,000	46,509,000	21,099,000	117,788,000
Welfare, Y.M.C.A., etc.	3,295,000	15,702,000	2,576,000	3,302,000	15,680,000	9,688,000	50,242,000
Hospitals	13,594,000	54,166,000	6,972,000	27,438,000	105,096,000	52,148,000	259,414,000
Office Bldgs.	21,157,000	88,877,000	18,089,000	26,359,000	190,486,000	82,603,000	427,570,000
Banks	17,608,000	54,328,000	8,835,000	18,783,000	154,482,000	38,669,000	292,705,000
Schools, Public Bldgs.	65,159,000	158,165,000	41,515,000	31,930,000	383,036,000	190,228,000	870,034,000
Theatres	9,573,000	34,847,000	2,759,000	7,381,000	29,388,000	17,943,000	101,891,000
Stores	11,113,000	35,383,000	6,826,000	7,480,000	58,361,000	27,723,000	146,887,000
Industrial	29,859,000	162,762,000	38,824,000	25,231,000	241,871,000	49,488,000	548,037,000
Automotive	11,988,000	35,942,000	2,799,000	8,386,000	52,464,000	15,190,000	126,768,000
Total Value of New Buildings	\$355,375,000	\$1,388,130,000	\$236,059,000	\$320,639,000	\$2,018,565,000	\$797,776,000	\$5,116,544,000

Estimated Building Activity in the United States for 1923 Based on Actual Reports from 1,767 Architects' Offices and Conditions Described in Text Herewith (Reproduced from the Architectural Forum)

Ten Years to Meet Shortage

But the prediction that a building era will continue unabated for some time is undeniable. Even if construction moves along at 25 per cent. above normal beginning now the deficit will not be met for at least ten years.

It is believed that the first great waves of speculative building of a cheaper type have passed and that 1923 work will be on structures of a more substantial nature. Residential construction is expected to continue strong.

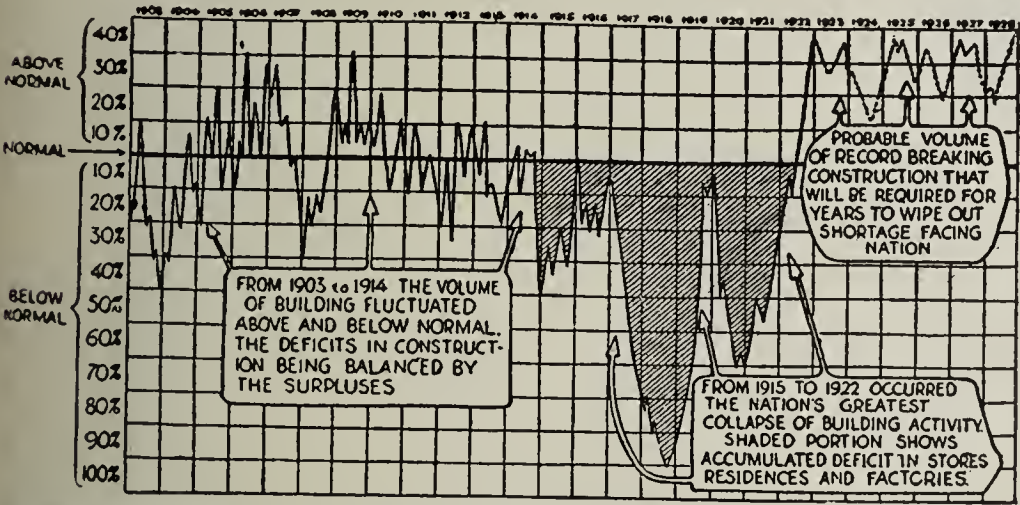
Industrial building bids fair to proceed in large volume with a better type erected. Much of this represents expansion of already well-established industrial concerns.

One of the best aspects of the situation is that there will be ample funds to finance the anticipated program. Beyond this, labor is expected to co-operate more freely than in the past.

To quote the Architectural Forum: "The great drop in construction costs is over and those who wish to build may do so in 1923 without fear of loss thru the shrinkage of existing building values incidental to rapid price deflation."

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Be sure to look at next issue, February 20, for the winners in the prize slogan contest. All the slogans which have been received are printed on pages 214 to 216 in this issue.



A Graphic Presentation of the Building Shortage Which Has Created an Unprecedented Demand for New Buildings of Every Type. (Reproduced from the Architectural Forum)

Canadians Discuss Plant Problems

Joint Meeting of C. N. C. P. A. and W. O. C. W. A. Brings 100
Delegates to Hamilton—Practical and Instructive Papers Presented

THIS YEAR'S MEETING of the Canadian National Clay Products Association and the Western Ontario Clay Workers' Association in Hamilton, Ont., was regarded by those present as a forum where papers of unusually instructive and high practical value to every clay products manufacturer were presented and discussed. The meeting was held in the Royal Connaught Hotel on January 23, 24 and 25, and was a joint convention of the above two organizations. The attendance, altho not as good as was anticipated, numbered approximately 60 brick, tile and sewer pipe manufacturers and about 35 persons connected with clay machinery firms or allied with the clay products industry. Ryland H. New was honored by being elected to a third term as president.

Entertainment at the local theatre on Tuesday night, an elaborate banquet with splendid speakers and delightful entertaining talent on Wednesday night, luncheons at noon each day and inspection trips to three clay ware manufacturing establishments at Hamilton rounded out the program very well. The luncheons at noon were a new feature in the program this year.

Dalzell Speaks on Building Laws

A. G. Dalzell, Engineer, Vitriified Clay Publicity Bureau of Canada, read the first paper, entitled, "How Building



RYLAND H. NEW.

By-Laws May Reduce Our National Fire Loss." The fire losses in Canada are a great deal more than in England and the cost of maintaining fire departments is also very much higher. Defective flues are a large factor in the origin of fires and when fires start from this source they are usually more difficult to control. This fact is brought out by statistics which show that losses due to defective chimneys amount to more than the losses due to any other causes. Mr. Dalzell suggested that the brick manufacturers hold a prize contest

for the best architectural design of a modern store building that would be fireproof and beautiful.

J. M. Pigott, of the Pigott-Healy Construction Co., spoke at the Tuesday luncheon, on which occasion he mentioned the great shortage in building labor in Canada and the need for more apprentices. He outlined a very excellent scheme for establishing apprenticeships by paying boys \$50 a month thruout the year. During the winter of their term they would attend classes in school and in the summer would be farmed out to the various contractors who are cooperating in this matter and to be used as helpers in construction work.

Clay Should Be at Exposition

Mr. Pigott also urged that the brick and tile manufacturers be represented at the Exposition of Building Materials, which would be located permanently in one of Toronto's large structures.

"Simplified Clay Plant Accounting" was the subject of a talk by Fred Page-Higgins, who in his speech referred to the systems described in the January 9 issue of Brick and Clay Record, which, he said, were good ones to use as a base for any clay products manufacturer. In the discussion that followed F. B. McFarren, Interprovincial Brick Co., Ltd., Toronto, described a blank which this company uses and which the superintendent keeps. The cost is obtained on every kiln of brick and this is checked up against the company's books. Mr. McFarren stated that there would be more profits and fairer competition if more manufacturers kept their accounts accurately. He stated that this company lost only \$700 in the last nine years on bad accounts.

Burning Coal Economically

The Economical Burning of Coal was the subject of a paper by W. L. McClennan, of the Penn-Canadian Coal Co. Mr. McClennan read a part of the United States Coal Commission report, which was also given in the last issue of Brick and Clay Record and also described some of the features desirable in coal used for burning clay ware.

B. F. Townsley, of Toronto, described the advantages of using pyrometers. He discussed the different types of couples and methods of recording the time-temperature curves of the progress of a kiln. In the discussion that followed it was brought out by those using pyrometers that their value was regarded as almost indispensable.

A representative of the Canadian-Ingersoll-Rand Co., Ltd., demonstrated the different parts of an air drill for drilling blast holes in clay and shale. Several of the brick plants, such as the Don Valley Brick Works, the Sun Brick Co., Hamilton & Toronto Sewer Pipe Co., Booth Brick & Lumber Co., and the Hamilton Pressed Brick Co. use this type of air drill.

Films Show Labor-Saving Equipment

The next item on the program were films shown by the Hadfield-Penfield Steel Co., showing the latest types of labor-saving equipment and mechanical handling of brick in the Hudson River District and Chicago. The interesting features of these moving pictures are discussed in a separate item on page 220.

F. L. Ferguson, of the Ontario Agricultural College, Guelph, gave a complete explanation of the drainage problems of the farmer. He described very fully the advantages of

tile drainage to the farmer. This paper was very instructive and it was recommended by those present that it be submitted for publication in various farm journals.

J. W. Sands, Canadian Representative of the Buckeye Traction Ditcher Co., described the use of the Buckeye clay ditcher for digging clay for tile or brick manufacture. Clay can be dug, he stated, at the rate of 200 cu. yds. a day at approximately three cents a yard. In the discussion that followed it was brought out by some of the manufacturers present that this machine was doing excellent work on plants that they had visited and would be worth investigation by many clay products manufacturers.

Describes Auto-Brik Machine

James P. Martin, of the Lancaster Iron Works, read a very excellent paper on the use of the new Auto-Brik machine and also the economies effected at the plant of the Lancaster Brick Co., where such a machine is in use. At the Jova Brick Works, Roseton, N. Y., 1,655,000 brick per month was the average for the year on one machine making eight bricks on the pallet. The world's record for soft mud brick production on a single machine was established at the Roseton (N. Y.) Brick Works, where on a nine brick pallet 42-inch machine 2,215,000 brick was a monthly production. At the Lancaster Brick Co. plant, labor economies effected enable a 60,000 daily production to be accomplished with a labor complement of only 30 men, or at the rate of 2,000 brick per day per man.

R. B. Morley, secretary of the Industrial Accident Prevention Association, advocated more care in accident prevention on brick plants, but his talk brought responses from the clay manufacturers present which seemed to indicate that there was considerable laxity on checking up on injured employees by the association.

Tells Experience with Steam Shovels

Frank R. McCannell, of the Milton (Ont.) Pressed Brick Co., Ltd., discussed the subject of steam shovels and described his experience with various types. He was of the opinion that the newest type of caterpillar traction and electric motive power were to be recommended for use on the majority of clay plants.

Thomas Hibbens, of the Stevenson Co., followed W. May, Jr., of the Sun Life Insurance Co. Mr. Hibbens spoke on the subject of crushers and described the operation of various types, such as the jaw crusher, anaconda roll, and the single roll crushers. He stated that the newest type was a single roll crusher and, altho its maintenance cost is somewhat higher than the other types, this disadvantage was offset by the elimination of the man required for feeding the roll. He recommended its use highly for clay ware manufacture.

"Kinks in the Manufacture of Hollow Tile," was the subject of a paper read by H. Dingleline, superintendent of the National Fire-Proofing Co., of Canada. Mr. Dingleline pointed out that the single winged auger was faster, but usually caused greater lamination. The triple winged auger is ideal, but it is very slow. The double winged auger is the safest and is best to start with where one is commencing the manufacture of hollow tile. The distance from the die to the auger is a very important factor in obtaining a proper production and to obtain best results the auger should be very highly polished. Other points of important consideration in hollow ware manufacture relating to dies and lubrication were also covered in Mr. Dingleline's paper.

C. A. Bowen Speaks to Canadians

The annual banquet was held on Wednesday evening. William R. Dryman, of Hamilton, was the toastmaster. Charles A. Bowen, assistant to the president of the Common Brick Manufacturers' Association, delivered an exceedingly splendid address on cooperation, and urged that common

brick manufacturers get together to promote the value of their product, as a commodity of beauty, permanence and low ultimate cost for home construction. The Rev. Dr. S. Banks Nelson, of Hamilton, was a very able speaker and most versatile in his subjects. Those who heard him agreed that he was one of the most illustrious speakers that they had ever had the privilege of hearing. Sir Henry Drayton, K. C., K. G., who was the former administrator of finance, honored the Canadian Clay Products Association with a very splendid address on some of the nation's problems in economics and taxes.

Wednesday afternoon was set aside for inspecting three very interesting plants, including the Canadian Libby-Owens Sheet Glass Co., Ltd., where modern manufacture of window glass was witnessed. This mammoth and up-to-the-minute plant was of considerable interest to the visitors.

See Electrical Porcelain Plant

The Canadian Electric Porcelain Co., Ltd., where insulators are manufactured, held many things of interest to the clay manufacturers, who delighted in witnessing the process of manufacture, altho they were quite different from that used in their own plants.

R. Campbell's Sons, manufacturers of earthenware products, was the third plant visited.

All precedents were broken when new officers were elected for the ensuing year. Ryland H. New, of the Hamilton & Toronto Sewer Pipe Co., was re-elected president to serve a third term. This is the first time in the history of the Canadian National Clay Products Association that any man has been honored with this distinction. This was done in appreciation of Mr. New's excellent work in administering the affairs of the association and because of the many new features he is introducing for the welfare of the organization. The other officers remained intact and the councillors increased from eight to ten, Robert New and H. F. Dingleline being added.



NATIONAL BUILDING CODE ON SMALL HOUSE CONSTRUCTION

The first report of the Building Code Committee, organized by Herbert Hoover and working under the auspices of the Department of Commerce, presents recommendations for the construction of one and two family dwellings having exterior walls of solid or hollow masonry, concrete, and frame, the latter including veneer and stucco surfaces.

In order that its recommendations might have sound bases of information and opinion, the committee obtained the cooperation of nearly 100 architectural and engineering societies, builders' exchanges, and industrial organizations producing building materials.

The committee recommends that building codes permit 8-inch solid brick and 6-inch solid concrete walls for 2½ and 3 story dwellings accommodating not more than two families each; that 8-inch hollow building tile, hollow concrete block, or hollow walls of brick ("Ideal" construction) shall not exceed 20 feet in height to the gable; and that frame construction be limited to 2½ stories. Metal lath and plaster on wood studs properly fire-stopped is approved for party and division walls, but at least every alternate wall in row houses must be 8-inch solid brick or concrete, or 12-inch hollow building tile, concrete block, or hollow wall of brick.

Requirements for quality of hollow masonry units agree fairly well with present practice, but those for brick are somewhat below the medium grade established by the American Society for Testing Materials. Foundation walls of brick are required to be 12 inches thick for excavated enclosures, and similar concrete walls shall be as thick as the walls they support, but not less than eight inches. Special hollow build-

ing tile 12 inches thick is permitted for foundation walls of frame buildings.

Detailed recommendations are given for fire-stopping and chimney construction, also for treatment of built-in garages.

The recommended requirements are followed by a lengthy appendix containing explanatory material and much educational matter for the guidance of builders.

Copies of the report may be obtained by application to the Superintendent of Documents, Government Printing Office, Washington, D. C., enclosing 15 cents, money order or cash. Ask for Recommended Minimum Requirements for Small Dwellings.



HOLD CONVENTION AT U. OF W. STATION

The Pacific Northwest Ceramic Convention was held Saturday, January 20, at the University of Washington Ceramic Experiment Station. Some very fine papers were read and talks made by men prominent in the industry. This is the first convention of its kind to be held at the U. of W. Station.

An address was made by Milnor Roberts, Dean of the College of Mines, who welcomed the ceramic men and others present. Hewitt Wilson, Director of the Department of Ceramics, outlined the work of the Department, its scope and purpose. There were a number of technical papers and talks, among which were the following: A Study of Sillimanite as a Refractory, F. W. Schroeder, Department of Ceramics; Hollow Building Tile Construction, Fred T. Heath,

Department of Ceramics; Coals of Washington, Classification and Use for Producer Gas, Joseph Daniels, Professor of Mining and Metallurgy; Some Problems of Steam Pipe Dryers, Ernest F. Goodner, Washington Brick, Lime & Sewer Pipe Co., Spokane; Humidity Dryers, A. L. Bennett, Northern Clay Co., Auburn. S. F. Gould, Professor of Architecture, of Bebb and Gould, architects, discussed the clay products of the Pacific Northwest from an architect's viewpoint. Hewitt Wilson spoke on Glacial Clays and Tertiary Shales of the Puget Sound District.

The technical program was followed by an inspection of the ceramic laboratory and a banquet at which interesting topics were brought before those assembled. This meeting also marked the organization of the Pacific Northwest Ceramic Society. Several moving pictures were shown illustrating the manufacture of face brick, terra cotta, sanitary ware, and other products.



FACE BRICK TESTS OF GEORGIA CLAYS

There is in Georgia a great quantity of impure feldspars and pegmatites which are unfit for use as a pottery ingredient, but which, it is hoped, will make satisfactory vitrified face brick when mixed with an appropriate amount of white clay and burned to a dense body. With this idea in mind test pieces have been made up at the Ceramic Experiment Station of the Bureau of Mines, using varying proportions of several different feldspars and clays.



Show Automatic Soft Mud Machine in Movies

ONE of the most interesting parts of the recent convention of the Canadian clay manufacturers at Hamilton, Ont., was the time devoted to the Hadfield-Penfield Steel Co.'s moving pictures of several interesting equipment installations in brick plants at Mechanicsville, N. Y., and Boynton, Okla.

The "movies" of the Duffney Brick Co. at Mechanicsville, showed the operations necessary for manufacturing soft mud brick by the automatic process. The brick come out of a machine which automatically puts the brick into the molds, bumps and dumps the molds, and discharges the brick seven on a pallet. These pallets are then conveyed to an elevating and lowering conveyor, which automatically feeds three pallets at a time onto a rack having 12 pairs of prongs arranged over each other in the form of racks or shelves so that six pallets can be placed on the 12 prongs.

Pallets Moved Electrically

After the prongs have been loaded with pallets they are moved forward electrically by an operator to the dryer cars. The device is so arranged that the 12 pallets will fit into the 12 shelves or racks of the dryer car. When the operator has slid the pallets into position they are automatically lowered so that they rest on the supports of the dryer car. After the brick have been dried they are set on specially designed cars, which are then brought to the kiln shed. A setting machine takes the brick and places them in the updraft kiln.

The mechanism of these special machines involves many electrically controlled devices and switches and also a number of special types of motors. This electrical equipment was all supplied by the General Electric Co. The work on the Duffney plant here described was special development work by the Hadfield-Penfield Steel Co.

Another interesting development by that company's engineers is the drying installation at the plant of the Boynton (Okla.) Paving Brick Co. This company had to contend with a very tender clay, which was extremely difficult to dry. Hadfield-Penfield finally solved the difficulty by devising a system of drying over the continuous chamber kiln. A crane

lifts the brick in racks and sets them on top of the crown of a chamber under fire, and there the brick are slowly dried.

To facilitate cooling, setting and drawing the kilns, they have been built with removable crowns which can be handled by a crane. When a chamber is set the crane picks up the crown and places it in position on the kiln.



LEGALITY OF COST ACCOUNTING BY ASSOCIATIONS

Trade associations or groups interested in cost accounting may meet solely for the purpose of the study of costs, the detection of errors and the improvement of their methods without contravention of law, in the opinion of Commissioner Gaskill of the Federal Trade Commission. Mr. Gaskill further believes that it is legal to make reports of such conferences available to absent members, Government agencies and other interested parties. Mr. Gaskill says:

"Of course the legal situation is confused by reason of the decisions in the Hardwood Lumber case and the Linseed Oil case, and it will be some time probably before this confusion will be cleared by any additional authoritative decisions. Trade associations must therefore determine as accurately as they can the legitimate field of proper endeavor, and having so taken counsel, should without hesitation, resting upon their legal advice and the clear consciousness of the propriety of their efforts, proceed without fear, willingly inviting the test of the courts' consideration of their conduct."—Bulletin National Lumber Manufacturers' Association.



ANNUAL HIGHWAY ENGINEERING CONFERENCE

The eighth annual conference on highway engineering will be held at the University of Michigan, February 13 to 17, 1923. The purpose of the conference is to aid in supplying to road commissioners and engineers all manner of information regarding highway construction.

Electrolytes' Effect on Plastic Clay

An Exhaustive and Interesting Study Which Is a
Step Toward Advanced Methods of Clay Preparation

John D. Brumbaugh

Professor of Physics, Defiance College, Defiance, Ohio.

If you are not a technical man, interested in the scientific study of clay properties, you will be inclined to pass this article up without reading it. But don't do it. Read it, because you will get a lot of good out of it. The study of electrolytes' effect on clays in the plastic state is fraught with great possibilities for every clay products manufacturer. Before long it may be possible by adding a few ounces of salts to your clay to speed up the drying operation and effect a considerable saving. According to figures contained in this article an addition of 1.5 per cent. of sodium chloride to the tempering water in pugging clay for stiff mud brick or tile will make it possible to reduce the quantity of water required by 17 per cent. Naturally this will reduce the drying time, and also make drying safer. If you don't read anything else, read the conclusion. It will give you the meat of this investigation.

Object

QUOTING A. V. Bleininger¹, "The effect of acids, alkalies, and salts upon clay suspensions (slips) has been discussed frequently, and the work of Simonis, Mellor, Rieke, Boettcher, Ashley, Forester and Bollenbach deals with the viscosity and other phenomena of systems in this state. But little is known concerning the effect of such reagents upon clays in the plastic condition which differs from that of a suspension, due to the cohesive influence of the particles upon each other."

It is the purpose of this investigation to determine the effect, if any, of the addition of small percentages of electrolytes to the water used to prepare clay in such a state of "workability," as is used in power molding machines employed in the arts. Further, it is the purpose of this investigation to determine whether or not, by the addition of a small percentage of electrolyte to the water of plasticity, the required state of workability of the clay can be produced by the addition of a smaller quantity of water.

It is further hoped, that this investigation may furnish some information of scientific value in this field, which, according to Bleininger, has been so little explored.

History

C. GOETZ² applied for a patent for the use of sodium carbonate with clay casting slip, in Germany, on October 22, 1891. The specifications read:

"Preparation of clay casting slips for porcelain, earthenware, and clay products by the addition of sodium carbonate or sodium bicarbonate with or without cinnabar, whereby the slip will pour more readily. It is sufficient to mix 1,500 parts of porcelain body with one part of a concentrated

solution of the sodium salt. The right proportions, however, depend upon the nature of the raw materials. It is also recommended, in order to hinder the development of a gray color on the edges during firing, to add cinnabar until the clay has developed a faint pink coloration to the slip."

The action of alkali carbonates on clay slips was evidently known to potters before Goetz's patent, as several articles appeared in the journals questioning the validity of the Goetz patent on the basis that the process was not new. In spite of this criticism the patent was granted in Germany, France and Austria.

Brongniart's Opinion

As far back as 1844, Brongniart³ stated that M. de Bettignies used three per cent. of potassium carbonate with his casting slip in order to give it the necessary "adherence" to the mold, when it was not aged.

A. Schmidt⁴, in 1894, showed that 130 parts of potassium carbonate, 75 parts of sodium hydroxide, and 4 to 600 parts of water glass produced the same results as 100 parts of soda ash; and that the mixture of soda and potash might be used with good results.

K. Greiner⁵, in 1903, recommended the use of a mixture of water glass, with the substitution of potash instead of soda if desired; and in 1905, A. Johnson⁶ patented a mixture of equal parts of water glass and sodium carbonate for the same purpose.

J. W. Mellor, S. A. Green and T. Baugh⁷, in 1908, made experiments on the viscosity of clay slips, with the view of ascertaining the effect of small quantities of added chemicals. They found that such added chemicals could be arranged in five classes:

1. Substances which first make the slip more fluid, while further additions stiffen the slip. Examples: potassium sulphate, tannin, gallic acid, sodium and potassium carbonates, and potassium nitrate.

2. Small amounts thicken the slip; increasing amounts make the slip more fluid. Examples: potassium-aluminum sulphate, dilute ammonia, copper sulphate.

3. Substances which make the slip thinner: sodium sulphite, water glass, ammonium gallate, hydrochloric acid, sodium phosphate.

4. Substances which only stiffen the slip: borax, calcium chloride, calcium sulphate, and humic acid.

5. Substances which have no appreciable effect on the slip: alcohol.

Boettcher's Discovery

M. Boettcher⁸, in 1909, found that the hydroxides of sodium, lithium and potassium, and the corresponding carbonates exercise their fluidifying and suspending influence only within quite fixed concentrations; if these be overstepped, the

³ "Traite des Arts Ceramiques," by A. Brongniart.

⁴ "A Study in Clay Slips," by A. Schmidt.—Sprechsaal 1894, Pages 664-689.

⁵ "Casting Properties of Clay Slips," by K. Greiner; "Clay and Pottery Industries," by J. W. Mellor.

⁶ British Patent No. 14908, granted in 1905.

⁷ "The effect of Chemicals on the Viscosity of Clay Slips," by J. W. Mellor, S. A. Green and T. Baugh.—Transactions of English Ceramic Society, 1908, VI, Page 161.

⁸ "Suspensions in Clay Slips," by M. Boettcher.—Sprechsaal 1909, Pages 199-252.

¹ "The Effect of Acids and Alkalies upon Clay in the Plastic State," by A. V. Bleininger and C. E. Fulton.—Bulletin No. 17, Dept. of Ceramics, University of Illinois.

² German Patent No. 76247, granted in 1891.

phenomena at first favored are influenced prejudicially. With watery depositions of charcoal instead of clay the conditions are similar to those of clay as regards the action of alkaline carbonates and hydroxides. These results seem to show that the suspension phenomena do not arise from chemical actions, a conclusion which may by analogy be extended to the fluidification process.

A. V. Bleininger and C. E. Fulton¹, in 1912, studied the effect of acids and alkalies upon clay in the plastic state. In this series of experiments Georgia kaolin was used. The reagents employed were sulphuric acid, hydrochloric acid,

TABLE I
Analysis of Clay

Constituent	Per Cent.
Silica	63.62
Alumina and Iron.....	21.30
Calcium Oxide	1.40
Magnesium Oxide .....	.72
Water	10.40

sodium hydroxide and sodium carbonate. In this work shrinkage upon drying was used as a measure of plasticity; and it was found that acids caused a decrease in shrinkage, while alkalies caused the reverse effect.

Equilibrium in Clay Slips Unstable

C. H. Kerr and C. E. Fulton², in 1913, found that there was a very unstable equilibrium in clay slips, which is greatly affected by the addition of very small amounts of electrolytes. The effect of the electrolyte is not confined to changing the amount of water necessary to produce plasticity. If variations in volume shrinkage due to differing amounts of water be allowed for, there still remain other (quite large) variations due to other roles of the electrolyte. The variations in volume shrinkage due to differences in amount of water are apparently not dependent upon and not directly connected with other variations in volume shrinkage due to other roles of the electrolyte.

Adolph Mayer³, determined the limiting amounts of electrolytes which will permit a fine clay, freed from soluble salts by treatment with hydrochloric acid, still to be kept in suspension in water (100 grams of clay, 500 cubic centimeters of water). The limits found are: Ammonia, 2.5 per cent; sulphuric, hydrochloric, and nitric acids, and the alkali salts of these acids, 0.025 per cent.

H. G. Schurecht⁴, in 1921, studied the effect of various electrolytes in the purification of clays in the form of slips. He assumed that the variation in the viscosity of the clay slips could be used as a measurement of the change in the plastic state of the clays. Schurecht found that the activity of the electrolyte on clay is less in concentrated solutions than in dilute solutions, and that it is more important in maintaining minimum viscosity in clay slips in which the clay and water contents vary to keep the ratio of electrolyte to clay constant, than to keep constant the ratio of electrolyte to water.

Effect of Sodium Hydroxide on Georgia Kaolins

When sodium hydroxide is added in small quantities to Georgia kaolin, a decrease in viscosity is recorded up to a certain point, and then there is a sudden drop to minimum viscosity. Sodium carbonate or sodium silicate did not retard the decrease in viscosity, as did sodium hydroxide. The limits within which sodium hydroxide produces minimum viscosity are small, but the limits within which sodium silicate and sodium carbonate produce minimum viscosity are relatively large.

As a measure of the plasticity of clays, Zschokke⁵ considers that the percentage of extensibility multiplied by the tensile strength of a freshly-molded clay cylinder of standard size (60 mm. high by 30 mm. diameter) is a coefficient of the plasticity.

Ashley¹² has assumed that the force resisting deformation in clay in the plastic state is exerted by the colloids in the clay. He regards the plasticity of clay as:

$$\text{Relative colloids} \times \text{Shrinkage of clay}$$

Jackson-Purdy Surface Factor

Rohland¹⁰, on the assumption that colloid matter in clay is the chief cause of plasticity, has suggested that the ratio obtained by dividing the coagulable colloids by the non-coagulable material is a measure of plasticity. He ascertains this by measuring the amount of water required to make a clay into the consistency of a good modeling paste, and argues that this is a measure of the colloids, because as soon as sufficient water is present to dissolve the coagulable colloids a saturation point is reached and no more water can be absorbed without the clay losing stiffness.

Index to Plasticity

P. Kreiling¹³ considers the weight of 70 c.c. of clay, when mixed with water in its most plastic state, as a good index of the plasticity of the clay.

E. C. Bingham¹⁴ has developed a method for the measurement of plasticity, which consists in passing the body to be measured thru an especially designed orifice under a constant known air pressure. The air pressure being kept constant by a system of hydraulic pressure tubes.

Apparatus

FOR THE DRYING of the clay, a constant temperature electric drying oven, fitted with a 300 deg. C. thermometer, was used. The oven was provided with a thin steel pan, in which the clay to be dried was placed.

For the final grinding of the clay, a McCool laboratory size pulverizer, built by The Mine & Smelter Supply Co. of Denver, Colo., was employed.

There were two types of plastometers used, namely, the impact plastometer and the constant pressure plastometer. The impact plastometer will be described first. For this description kindly refer to Plate 1. The impact plastometer consists of a brass cylinder (1) which is 0.933 cm. in diameter and 25 cms. long, and bored out at the top so as to give it a weight of one kilogram. This cylinder is mounted in a suitable frame (2) in such a way that it is free to move up and down in the frame with little friction. The frame is provided with a set screw (3), which serves to fasten the cylinder at any point during the time that readings are being made. The frame is also provided with a vernier (4), which is graduated to tenths. The cylinder is provided with a pointer (5), which serves to refer the position of the cylinder to the vernier. The frame is attached to a wooden platform (6), which provides the support for the specimen (7) to be measured.

How Specimens Are Formed

The mold used to form the specimens tested on this plastometer consists of a galvanized iron mold (8) having the shape of a truncated cone, being 2.5 inches in diameter at the small surface, 3.0 inches in diameter at the large surface, and 1.5 inches in height along the vertical.

¹ "Effect of Electrolytes on Clay Slips," by C. H. Kerr and C. E. Fulton.—Transactions of American Ceramic Society, 1913, XV, Page 184.

¹⁰ "Physical Properties of Clays," by A. B. Searle, Page 287.

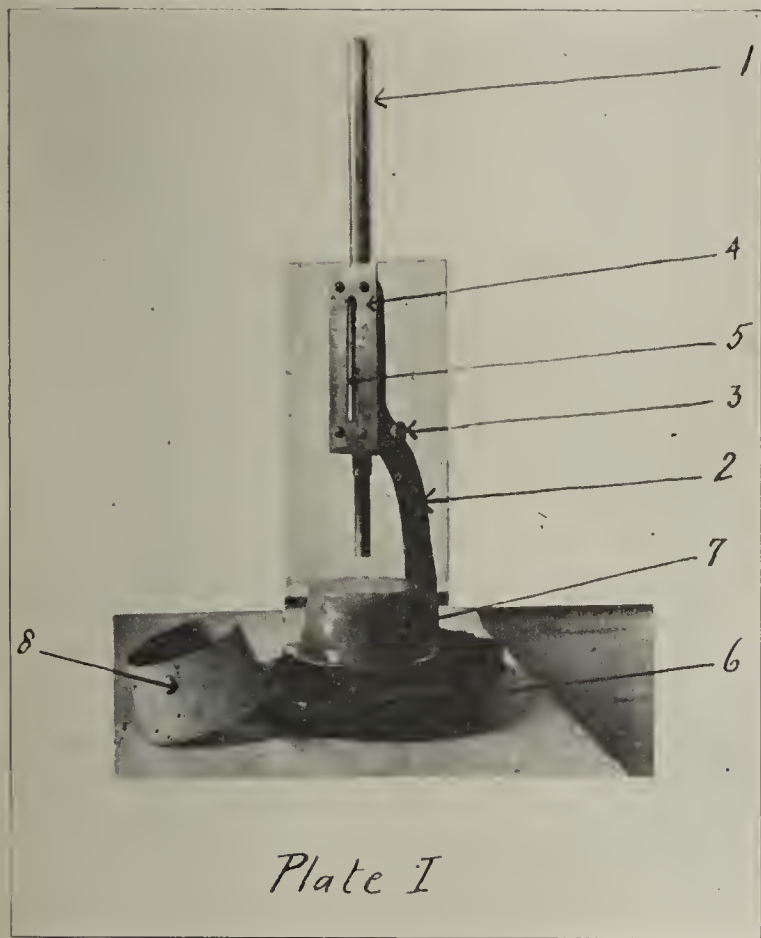
¹¹ "The Use of Electrolytes in the Purification and Preparation of Clays," by H. G. Schurecht.—Bureau of Mines, Technical Paper No. 281.

¹² "Physical Measurement of Clays," by C. H. Ashley.—Geological Survey, Bulletin No. 388.

¹³ "Technical Methods of Chemical Analysis," by G. Lunge, I, Page 671.

¹⁴ "Paint, a Plastic Material and Not a Viscous Liquid; the Measurement of Its Mobility and Yield Point," by E. C. Bingham and H. Green.—Proceedings of American Society for Testing Materials, XIX, Part 2, Pages 640-676.

For the description of the constant pressure plastometer, please refer to Plate II. This plastometer consists of a steel cylinder (1), having an inside diameter of 1.69 in., and a length of 4.0 in., and mounted in a suitable wooden frame (2). The inside surface of the cylinder is carefully planed,



Impact Plastometer. For Description See Article Under "Apparatus."

and a brass piston 0.875 in. in length, is fitted in the cylinder. In the center of the piston there is a countersunk female thread, which permits the connection of a rod to the piston, for the purpose of removing it to recharge the cylinder. The bottom end of the cylinder is closed with a cap (3),

constant pressure; the top of the "T" is closed by a nipple and cap (6). The "T" is connected by a 0.375 in. pipe to a high pressure oxygen cylinder (8), which is provided with a constant pressure regulating diaphragm (9). The regulating diaphragm is provided with a gage (10) for indicating the pressure in the line, and also a gage (11) for indicating the pressure in the tank. As a check on the line pressure gage of the regulating diaphragm, another gage (12) is connected into the line. A valve (13) is fitted into the line, in order that the pressure can be brought to the predetermined value in the regulator before it is turned into the clay cylinder. A valve is also provided for cutting in and out the check gage. The clay cylinder is charged by first unscrewing the cylinder from the "T," and then the piston is removed, and the clay to be measured is packed into the cylinder. The piston is then replaced in the cylinder on top of the clay charge, the cylinder is screwed into the "T," and the apparatus is then ready for the determination.

An 80 mesh Taylor classification screen was used in the screening of the ground clay.

For a more complete description of the operation of the impact plastometer and the constant pressure plastometer, please refer to the previous page.

Procedure

FOR THIS INVESTIGATION a typical brick and hollow ware clay from Stark County, Ohio, was used. This clay was found to show an acid reaction when tested with phenolphthalein; the analysis of this clay is recorded in Table 1. It was found by experiment, that when 60 c.c. of water were added to 200 g. of the clay, which had been ground to a fineness sufficient to pass thru an 80 mesh sieve, and dried for 24 hours at 110 deg. C., the degree of plasticity was produced which is ordinarily used in the arts.

For the sake of clearness, a definition of plasticity as used in this study will be given. Plasticity has been defined as

TABLE II
Plastometer Performance Measurements

Determination Number	"A" Reading	"B" Reading
1.....	8.3	7.3
2.....	8.5	6.9
3.....	7.4	6.8
4.....	8.0	7.5
5.....	8.3	7.9
6.....	7.8	6.8
7.....	8.6	7.5
8.....	7.9	7.75
9.....	7.2	7.5
10.....	8.0	6.8

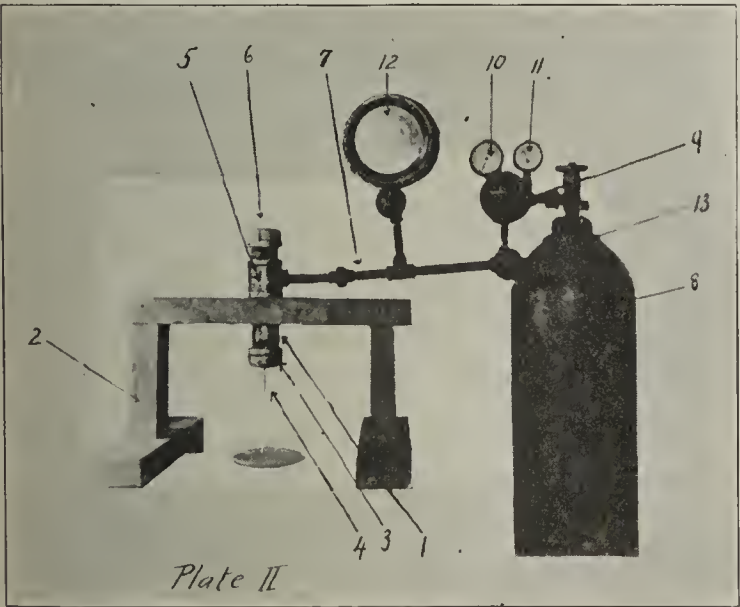
Note: "A" readings are in terms of clay discharged from the orifice in 30 seconds. "B" readings are in terms of the depth of the impression made by the cylinder in the test specimen.

"A"=Constant Pressure Plastometer
"B"=Impact Plastometer

that property of a material which enables it to change its form without rupture, the new shape being retained when the deformative force is removed. In other words, a material is said to be plastic when it can be kneaded or pressed into any desired shape, and remains in that shape when the kneading ceases or the pressure is removed; this alteration of shape being capable of being repeated indefinitely.

Measure of Plasticity Has not Been Determined

Since the object of this study is to determine the effect of electrolytes on clay in the plastic state, some method of measuring the comparative changes in the workability of the clay had to be developed. Quoting A. B. Searle¹⁰, "The measurement of plasticity is a problem which has not yet been satisfactorily solved, probably for the reason that



Constant Pressure Plastometer. See Article Under "Apparatus" for Description.

which is screwed to the outside of the cylinder wall. In the center of this cap there is a bored hole, 0.125 in. in diameter, thru which the clay (4) to be measured is passed. A "T" (5) is screwed onto the top of the cylinder, and serves as a means of connecting the cylinder to the source of

plasticity is the result of the united action of several forces, some of which may not as yet, have been recognized as important." Various methods of measurement were considered, e. g., the determination of the shrinkage of clay upon being dried but, in the words of C. E. Fulton³, "there is at the present time no clear conception as to the relation between plasticity and shrinkage," so his method of measurement was disregarded. Another method considered was the determination of the amount of colloids present, but, this method seemed unsatisfactory, since according to C. H. Kerr's investigation⁴ it appears unlikely that the whole of plasticity in clay is due to colloid matter. Further, in developing a method for measuring the changes in the

the flow of clay to cease entirely. In order to overcome this difficulty, pistons of water, heavy oil, and mercury were tried, with little improvement. Mercury was the most effective, but, a good per cent. of it was lost in each measurement, and it was very difficult to handle, thus making it impracticable. The measurement made on this type of apparatus could not be made to check closer than fifty per cent. on the average, and thus the apparatus was of no value for measurement.

Use Brass Cylinder for Measurement

Next, a perfectly smooth brass cylinder 1.82 inches in diameter, and 6.5 inches long, and tapered to a 0.25 inch aperture at the one end, was tried. This cylinder was packed in the same manner, and with the same clay as the first cylinder. Due to the comparatively large surface of the cylinder wall in relation to the cross sectional area of the cylinder, great resistance was offered to the flow of the clay thru the cylinder. Under a constant pressure, sufficient to cause the clay to pass thru the orifice, as the cylinder discharged, the rate of flow of the clay increased rapidly, due to the decrease in the area of the cylinder wall exposed to the frictional and adhesive forces of the clay, which tend to resist the flow. This gave an ever increasing rate of flow during discharge instead of a constant rate as might be expected. This type of cylinder proved entirely unsatisfactory.

The next cylinder designed consisted of a planed steel cylinder, having an inside diameter of 1.69 inches, and a length of 4.0 inches, fitted with a brass piston. For a more detailed description of this apparatus, refer to the description in connection with Plate II. The clay was charged into the cylinder with the standard proportion of water, and in the same manner as in the other cylinders. This

C. C. of Water	"A" Reading	"B" Reading
40.....	.0	2.0
45.....	.0	2.1
50.....	2.3	2.8
55.....	2.5	3.2
60.....	7.8	7.0
65.....	11.0	9.0
70.....	16.0	12.4
75.....	—	15.2

workability of clay, the cardinal endeavor is to use a method of measurement which as nearly as possible duplicates the phenomena which take place when clay is forced thru the die of an auger hollow-ware machine.

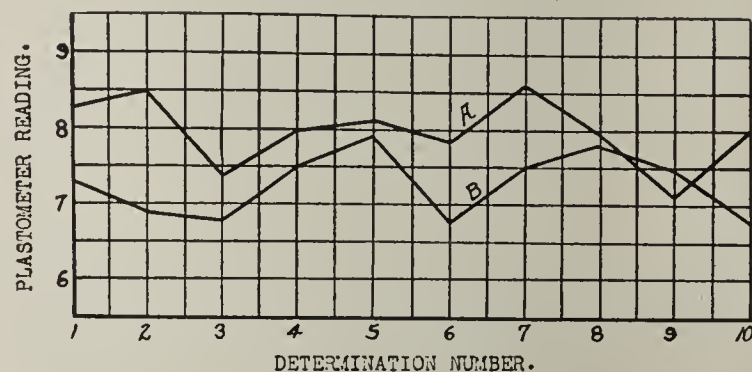
Measurements to Be Devised

The first type of measurement to be devised, comprises essentially the principle of determining the weight of clay discharged from an orifice of definite size, under a constant known pressure, in a given period of time. This type of apparatus thus closely duplicates the conditions which take place in a power molding machine. As a source of constant known pressure, a high pressure oxygen cylinder fitted with a constant pressure regulating diaphragm was chosen. By this device the pressure could be kept quite constant. The difficult problem in the development of this apparatus is in the design of the cylinder. This is true because, according to E. C. Bingham, in case of clay in the plastic state a definite force must be applied before any deformation or flow takes place, and in the second place, the adhesion and frictional forces of the clay along the cylinder wall varies as the cylinder is discharged.

The first cylinder constructed consisted of a galvanized iron pipe 1.5 inches in diameter, and 4.0 inches long, fitted with caps at both ends, and with a 0.25 inch orifice in the center of the bottom cap. The cylinder was charged with clay mixed with the standard proportion of water. In charging the cylinder, the clay was carefully packed into it with a wooden stick, care being taken each time to have uniformity thruout the mass in the cylinder. Various pressures were tried, but, the air was forced into the pores of the clay, and steady flow from the orifice would only last for a very short time, then air which was forced into the pores of the clay would be discharged with the clay causing irregular flow, and finally the air would find its way presumably along the sides of the cylinder to the orifice, causing

PLATE III.

PLASTOMETER PERFORMANCE CURVES.



particular type of cylinder seemed to give quite promising results in the preliminary runs, so it was decided to make a number of accurate performance measurements, and thus determine whether or not the apparatus could be made to give repeating results with the same clay mixture, which were reasonably constant.

Preparation of the Clay

In making these measurements it is of cardinal importance to have the clay in the same physical condition, as nearly as possible, for each determination. In order to accomplish this

Electrolyte	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	3.00	4.00	5.00	6.00
Hydrochloric Acid.....	8.0	7.75	8.0	8.6	8.8	7.75	8.05	8.9	10.4	10.8	13.7	13.4
Sodium Chloride.....	10.0	11.4	11.1	10.9	12.0	15.3	13.6	13.1	12.9	12.5	11.4	11.3
Sodium Hydroxide.....	10.4	11.0	12.0	11.5	11.0	9.3	10.6	10.5	9.7	10.5	11.0	10.2
Ammonium Chloride.....	7.6	7.25	7.7	6.4	6.3	7.0	8.3	7.4	6.4	6.7	5.8	6.6
Aluminum Chloride.....	5.7	5.0	5.0	5.1	5.3	5.5	5.2	5.4	6.0	5.7	5.6	6.1
Sulphuric Acid.....	6.0	5.75	6.1	5.3	5.9	8.3	7.1	6.2	5.8	5.2	5.3	5.4
Barium Chloride.....	8.4	9.0	8.2	7.7	7.8	7.7	7.65	5.6	5.0	5.4	4.7	4.3
Calcium Hydroxide.....	6.6	5.6	5.2	4.4	4.5	4.0	3.7	3.6	3.3	3.2	2.3	1.8

Note: All of the above measurements were made on the Impact Plastometer.

the following procedure was carried out. The clay was ground on a McCool pulverizer to pass an 80-mesh sieve, and then dried in an electric oven at 110 deg. C. for 24 hours. 200 grams of the dried clay were used for each determination, to which 60 c. c. of water were added by dropping from a burette, at such a rate that the 60 c. c. were added in about 15 minutes; during the time the water is being added, the clay is vigorously stirred in a six-inch evaporating dish, by use of a porcelain spatula. After the water is added the clay is thoroly kneaded for ten minutes. Too great care cannot be exercised in the preparation of the clay specimen, as much of the success of the measurement depends upon it. After the mixing, the clay was discharged into the cylinder as previously described. Sufficient pressure was then turned into the cylinder to start the clay flowing from the orifice, and the pressure quickly adjusted to 65 pounds. After the clay had flown for about 40 seconds the stream was quickly cut with a sharp knife, and by use of a stop watch, the stream of clay was cut again in 30 seconds, this cut being caught on a watch glass. The stream was cut three times in a similar manner. The clay cut during each 30 second interval was placed in the drying oven and dried at 110 degrees for 24 hours, when it was weighed.

Ten Measurements Made to Secure Average

A series of ten measurements were made, and the results are recorded in Table II, under readings A, and are plotted on curve A of Plate III. The readings are recorded in terms of grams of dried clay discharged from the orifice in 30 seconds, under a constant pressure of 65 pounds. From this series of determinations an average value of eight grams was obtained, which will be taken as a standard for this measuring apparatus for all comparison determinations. From the readings it is readily seen that the greatest deviation from the average value is 12.5 per cent.; thus it is reasonable to assume that all measurements and comparisons made on this apparatus are within 12.5 per cent. of the true value, which is quite satisfactory, considering all the possible errors which enter into the measurement.

It is well to note, that to obtain good results in the use of this type of measuring apparatus, the cross sectional area of the cylinder should be at least one hundred times greater than the cross sectional area of the aperture thru which the clay is passed. This conclusion is based upon experimental data.

Design Simpler Apparatus

In the interest of simplicity of measurement another type of plastometer was tried. This particular type of apparatus, termed the impact plastometer, is based upon the principle of measuring the depth of deformation caused by allowing a metal cylinder to fall from a constant height and strike the surface of the clay specimen. Since the measurement of plasticity is largely the measurement of the shearing resistance of the clay, this principle of measurement seemed to be feasible. For a complete description of this apparatus, refer to the description in connection with Plate I.

A series of ten accurate performance measurements were made in order to determine whether or not the apparatus could be made to give repeating results with the same clay mixture, which were reasonably constant. The clay mixture used in these determinations was prepared according to the procedure, previously described. After the clay was mixed it was molded into the shape of a truncated cone, by placing it in the mold. Before molding, the mold was oiled with cylinder oil, which facilitated the removal of the clay from the mold. After the clay was molded, it was placed on the platform of the apparatus; the cylinder was then carefully lowered until it just touched the surface of the clay cone, the reading on the vernier was taken and recorded, and cylinder then

raised up to the top of the frame and allowed to fall and strike the specimen. A second reading was taken on the vernier, and by subtracting the first reading from the second, the depth of the deformation caused by the cylinder is given. Ten such measurements were taken on each specimen, and the average of the ten taken as the true value. Ten specimens were tested, and the readings, in terms of the deformation caused by the cylinder, are recorded in Table II, under readings B; and are plotted on curve B of Plate III.

Measurements Correct Within Eight Per Cent.

From this series of determinations an average of 7.27 was obtained, which will be taken as a standard for this measuring apparatus for all comparison determinations. From the

TABLE V

C. C. Water Added	Plastometer Reading
47.....	7.78
49.....	7.10
52.....	7.31
50.....	7.05
51.....	7.12

Average c. c. of water added is 49.8.

readings it is readily seen that the greatest deviation from the average value is eight per cent.; thus it is reasonable to assume that all measurements and comparisons made on this apparatus are within eight per cent. of the true value.

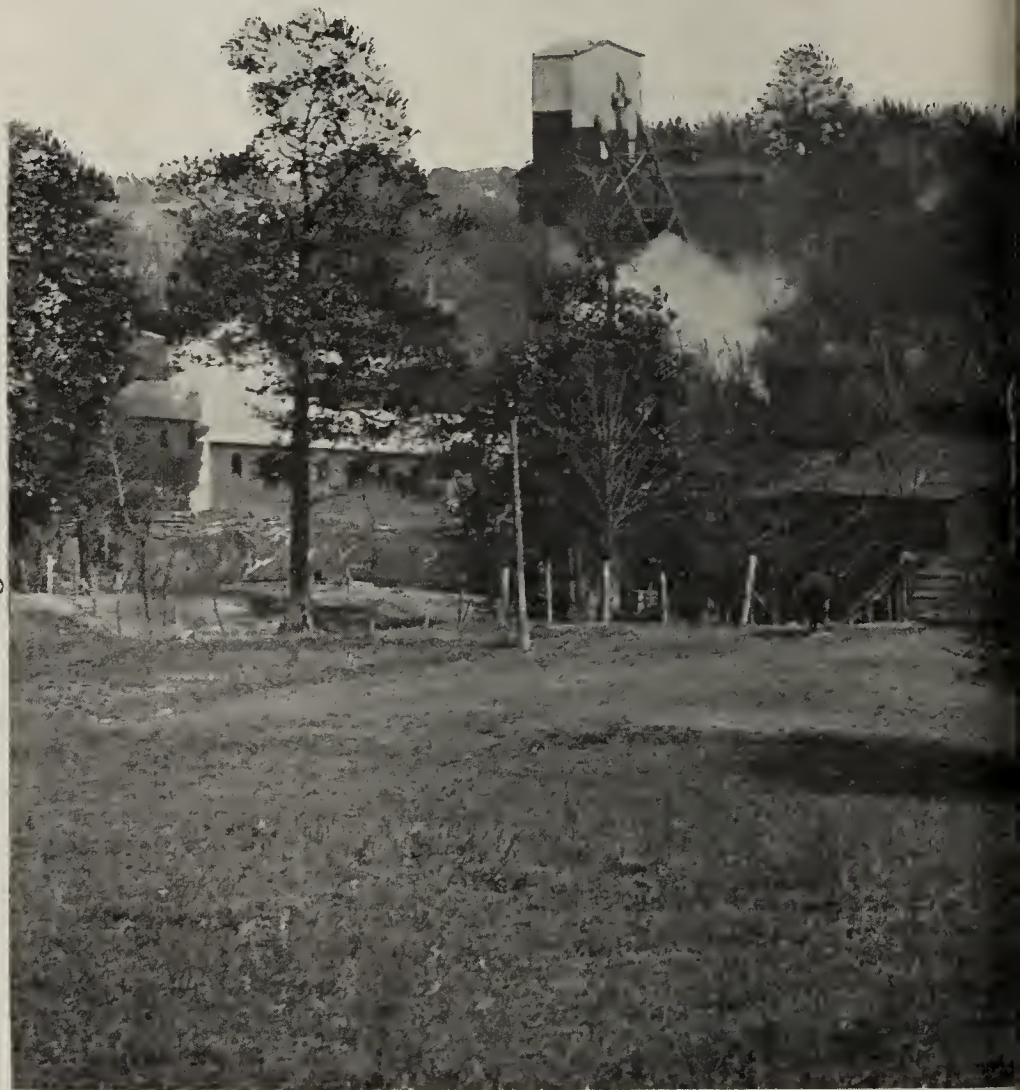
Remembering that the one important point in these measurements is to duplicate the conditions which occur when clay is forced thru the die of a molding machine, it was decided to determine whether or not the measurements of the impact plastometer paralleled the measurements of the constant pressure plastometer, when the degree of plasticity of the clay was varied by varying the amount of water added. For this series of determinations a 200 gram sample was taken, and the water added to each sample of clay was varied from 40 c. c. to 75 c. c. The mixing and preparation of the samples otherwise was carried out as before described. When the specimen was mixed it was first molded into the shape of a cone, and measured on the impact plastometer. The specimen was then charged into the constant pressure plastometer, and its measurement made. The results of this series of tests are recorded in Table III, and are plotted in Plate IV. Curve A represents the constant pressure plastometer, and curve B represents the impact plastometer. From an examination of the curves it is readily seen that there is a close parallelism between the two curves; in view of this fact it was decided to use the impact plastometer for all the future measurements included in this study, because of its simplicity and apparently greater accuracy.

Behavior of Clay

In the study of the effect of electrolytes on clay in the plastic state, the behavior of the clay in the presence of different percentages of the following electrolytes was investigated: calcium hydroxide, sulphuric acid, sodium chloride, barium chloride, aluminum chloride, hydrochloric acid, ammonium chloride and sodium hydroxide. In all these tests a 200 gram sample of ground, dried clay, mixed with 60 c. c. of distilled water in which a certain per cent. of an electrolyte was dissolved, was used. The per cent. of electrolyte is based on the weight of clay. The subsequent mixing and preparation of the sample was carried out as previously described and the sample in each case was measured as just described. Percentages of electrolyte from 0.25 to 6.0 per cent. were used. From 0.25 to 2.0 per cent., measurements were taken for each 0.25 per cent. increase in electrolyte, and from 2.0 to 6.0 per cent. determinations were made for each per cent. increase in the electrolyte.

Ten readings were taken on each test specimen, and the

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average of the ten was taken as the true value; the results are recorded in Table IV, and are plotted on Plate V.

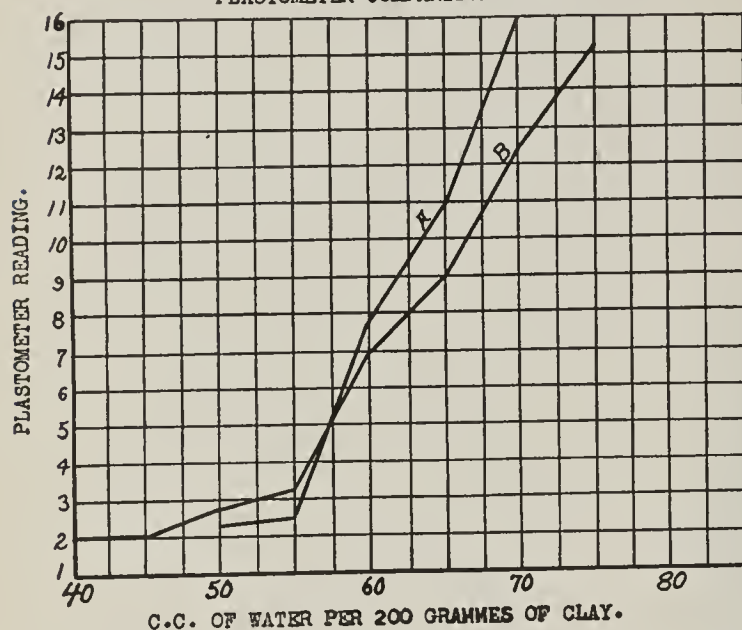
Sodium Chloride Increases Workability

A microscopical study of the clay in the plastic state was now undertaken. The clay was prepared in various degrees

decided to determine by experiment how much water would be required to give the clay the standard plasticity, in the presence of 1.5 per cent. of sodium chloride. In making this determination, a 200 gram sample of clay was taken, this was mixed with 30 c. c. of distilled water to which 1.5 per cent. of sodium chloride in terms of clay had been added. After thoro kneading and mixing, just enough distilled water was added to cause the clay specimen to give a reading of about 7.27 on the impact plastometer. Five determinations were made, and the average of the five taken as the true value. The results are recorded in Table V, and are further discussed in the conclusions.

PLATE IV.

PLASTOMETER COMPARISON CURVES.



of workability, and its structure was observed under the microscope, at a magnification of one hundred diameters. A number of photomicrographs were taken, a discussion of which is included in the conclusion of this report.

In view of the fact that sodium chloride seems to be most effective in increasing the workability of the clay, and since it is a neutral and comparatively cheap electrolyte, it was

Discussion and Conclusions

IN DRAWING ANY CONCLUSIONS from the above data, it is well to bear in mind that "much depends upon the nature of the raw material," Goetz². Thus any conclusions which are drawn apply to the particular clay studied, and it is hazardous to assume they will apply to the probable behavior of similar types of clay.

I will first give a short resumé of the behavior of the clay in the presence of each electrolyte investigated.

Hydrochloric acid causes the clay to become more fluid, the degree of fluidity increasing with the increase of acid.

Sodium chloride causes the clay to become more fluid until 1.5 per cent. of the electrolyte has been added, when a further increase causes a decrease in fluidity until about 5.0 per cent. has been added, when further addition apparently causes little change.

Ammonium chloride causes the clay to become less fluid until 1.25 per cent. has been added, when further addition causes the clay to become more fluid until 1.75 per cent. has been added, when further increase has little effect.

PLASTICITY-ELECTROLYTE CURVES

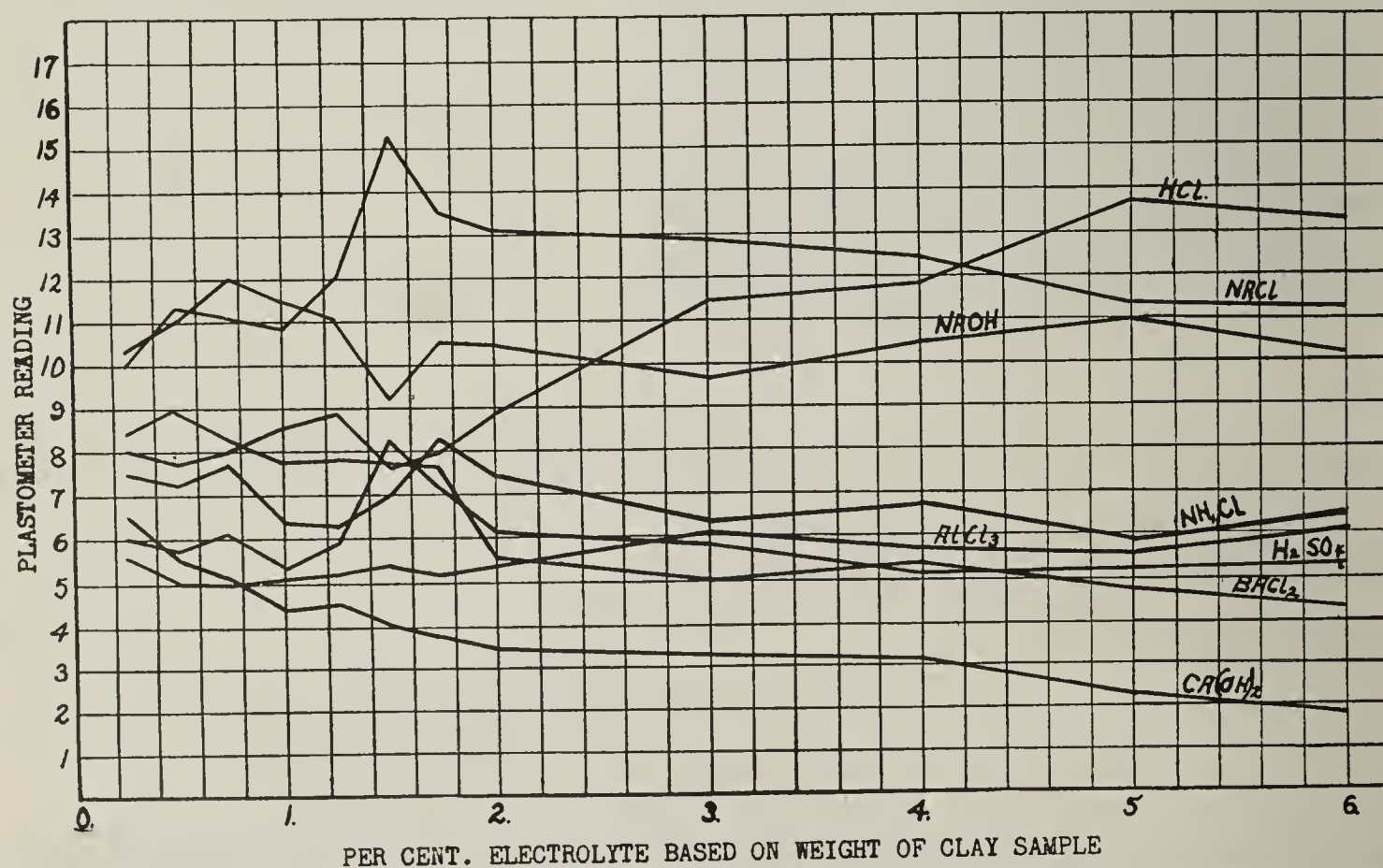
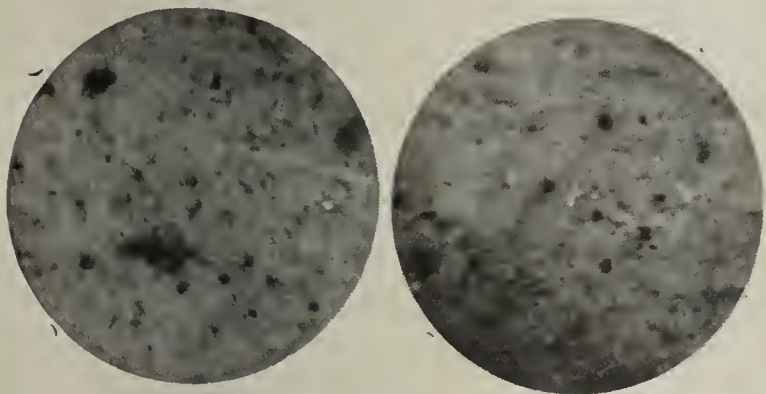


PLATE V.

Aluminum chloride causes the clay to become less fluid until 0.5 per cent. has been added, when further increase increases the fluidity slightly until 3.0 per cent. has been added, after which an increase of electrolyte has little effect.

Sulphuric acid decreases the fluidity until 1.0 per cent. of electrolyte has been added. With a further increase, the clay becomes rapidly more plastic until 1.5 per cent. of the electrolyte has been added. Still further increases up to 2.0 per cent. cause a rapid decrease in the fluidity. A further increase causes little effect.



Plates VI and VII. Plate VI Shows a Photomicrograph of the Structure of a Clay Specimen Mixed with the Standard Proportion of Water, Plus 0.25 Per Cent. of Sodium Chloride. Plate VII Shows a Photomicrograph of a Specimen of Clay Mixed with the Standard Proportion of Water Plus 1.5 Per Cent. of Sodium Chloride.

Barium chloride causes a steady increase in fluidity until 3.0 per cent. of the electrolyte has been added. Further additions cause a slight decrease in fluidity.

Calcium hydroxide causes a steady decrease in the fluidity of the clay until 2.0 per cent. has been added, when further additions cause a slight decrease in fluidity.

Electrolytes Divided in Four Groups

From the above results the electrolytes investigated may be grouped into four groups:

- (1) Electrolytes which cause the clay to become more fluid. Hydrochloric acid belongs to this group.
- (2) Electrolytes which first make the clay more fluid, while further additions decrease the fluidity. To this group belong sodium chloride and sodium hydroxide.
- (3) Electrolytes which first cause the clay to become less fluid, until a certain limit is reached, when further addition affects the clay in the opposite way. To this group belong ammonium chloride, aluminum chloride and sulphuric acid.
- (4) Electrolytes which cause a decrease in the fluidity. To this group belong calcium hydroxide and barium chloride.

From the above classification, it is seen that electrolytes may be grouped according to their effect upon clay in the plastic state; just as J. W. Mellor⁷ was able to group electrolytes according to their various effects on clay slips.

Three Classes of Constituents Observed

In the microscopical study of the clay, an effort was made to observe any change in the structure of the clay, with a change in the state of fluidity. When the clay was mixed with the standard proportion of water, and observed under the microscope, there seemed to be three general classes of constituents in the clay: (1) crystalline particles, (2) amorphous particles, and (3) colloid particles. The first two classes appear to remain constant in size, whether the degree of fluidity is increased or decreased, while the colloid particles decrease in size with an increase in fluidity. The writer termed this class colloid particles, because they seem to behave quite similar to colloids. It is the opinion of the writer that these amorphous, inorganic particles have a sub-microscopic porous structure, and that these particles absorb water eagerly and gradually assume the coherent physical state of a gel, which causes the wet mass to assume the state

we call plastic. This action is further evidenced by the rapidity with which dried clay absorbs moisture from the atmosphere. The decrease in size of these clay particles, as observed under the microscope, is probably caused by the added electrolyte undergoing dissociation in the solution and yielding anions and cations, according to the state of equilibrium. And it is assumed that the anion, particularly the chlorine ion, is more readily absorbed by the ultramicros than the cation. The anion thus imparts a negative charge to the clay particles, and subdivision goes on in a manner very similar to diffusion. The cations diffuse to the portions of the mixture where the concentration is not so great, taking in their wake the anion with their attendant ultramicros. From the maximum points on the curves of Plate V, it appears that the chlorine ion is particularly well adapted as a peptizing agent for the sol present in this clay. It is quite logical to assume that the points of maximum fluidity on the curves are points where class three of the constituents is apparently completely dispersed; this is further evidenced by the microscopical observations.

How Maximum Dispersion Is Brought About

The writer offers no opinion as to the composition of class three particles, but, suggests that this group of particles might be separated by lixiviation, and then more carefully investigated.

The maximum dispersion of class three is brought about by a certain concentration of anion, which is constant for each electrolyte, and if this value is exceeded, the clay will become less fluid. This reverse change is probably due to the attraction between the particles being lessened, owing to the increase in osmotic pressure in the interior of the clots. This action thus decreases the amount of sol. When this action has reached a certain state there comes a time when the sol begins to absorb the salts, when the fluidity is again increased; thus accounting for the second break in the curves of Plate V.

Plate VI shows a photomicrograph of the structure of a clay specimen mixed with the standard proportion of water, plus 0.25 per cent. of sodium chloride. Plate VII shows a photomicrograph of a specimen of clay mixed with the standard proportion of water, plus 1.5 per cent. of sodium chloride; this being the concentration at which the electrolyte exerts its greatest effect. In Plate VI the small white spots represent the crystalline constituents, while the dark spots represent the amorphous, inorganic constituents. The gray particles, which are much in majority, represent the colloid constituents. In Plate VII, which shows the structure of the clay at its most fluid state, it can be observed that the white crystalline particles and the dark amorphous particles still retain their size and shape, while the colloid constituents have entirely lost their shape, and appear as a solid mass, void of form.

Will Electrolytes Decrease Amount of Water Necessary?

Referring to Table V for the results of the second object of this investigation, namely, to determine if it is possible to decrease the amount of water required to produce a desired state of workability by the addition of an electrolyte, we see that by using 1.5 per cent. of sodium chloride in terms of clay with the tempering water, it is possible to reduce the quantity of water required by 17.0 per cent. Before recommending the use of salt with tempering water, it would seem advisable to investigate the effect of the sodium chloride on the tensile strength of the clay after being dried, and whether or not it increases the molded clay's tendency to crack during the drying period. With a possible saving of 17.0 per cent. or more, in the amount of tempering water required, it seems that this part of the study merits further investigation in relation to its application in the arts.

UNIVERSITY OF ILLINOIS

Accounting Simplified

G. W. Greenwood

Treasurer, United Refractories Co., Dunbar, Pa.

Chapter V—GENERAL USE OF THE OPERATING REGISTER

AS HAS BEEN SUGGESTED, the methods herein described are not confined to factories. There is practically no business to which they do not apply, and in which they will not result in a reduction of the work of accounting with an increase in information.

For example, take a firm which contracts for the construction of houses, the building of roads, or for any other kind of work.

We may take a pair of columns with the heading "CONTRACTS." We then number our contracts or designate them in some manner. When material is purchased and delivered to contract number 74, for example, we charge it in the column under "CONTRACTS" and insert the number, 74, in the middle space. The wages of men working on this contract, if included in a general pay roll covering all the firm's activities, would be charged to this contract instead of to "EXPENSES (b)"; or, if payment is made by check at the close of the week for the work of that week, then we can charge up the amount against this contract and credit "BANK." Supplies which are on hand at the main distributing point can be taken for this contract and credited to "EXPENSES (g)." Salaries of foremen who look after different contracts can be distributed in any equitable fashion. In fact, so far as it is possible to determine, or desired to estimate, the value of labor and materials used in connection with any contract, this system of accounting makes it possible to keep track of these items.

How to Handle Contracts

Suppose the contract price for number 74 was \$10,000. At the conclusion of the contract we may charge "ACCOUNTS RECEIVABLE" with \$10,000 and credit "CONTRACTS." We may make this charge in instalments as the work progresses, if we so desire, instead of waiting until the work is entirely done. If the total charge to this contract from start to finish was \$11,000, then we have a loss of \$1,000 which should be credited to "CONTRACTS" and charged to an account in the General Ledger with an appropriate heading: "Profit and Loss on Contracts," for instance. The balance shown by the accounts with Contracts in the General Ledger will thus represent the correct cost of work and materials on open contracts with a deduction for amounts transferred to current Accounts Receivable, or for which payments have been received on the basis of estimates. It is easy to see that when the last contract has been completed, the Contracts account in the General Ledger will balance and the "Profit and Loss on Contracts" will show the amount gained or lost on contracts which were closed during the current year.

It can readily be seen how simple a matter it is to keep track of contract profits and losses, so far as the data is obtainable. Of course, if one keeps no account of the work done on separate contracts, or no record of the brick hauled from the main storage yard and delivered on each separate contract (and this state of affairs is exactly what happens at times!) then it is not possible at the close of any contract to tell what was the outcome.

Bookkeeping consists of ten parts; nine parts are required

to obtain the facts, and the remaining part covers the actual keeping of the books.

Possibilities to Contractors

But the possibilities to contractors of this system have not yet been covered. When one took contract number 74 for \$10,000, presumably he had on file an estimate of the labor and material which would be required, all set forth in considerable detail; so many brick at so much per thousand, and so forth. Then when he makes the charge for material delivered on this contract, he adds to the 74 in the central column a further number or letter indicating what the charge was for. When he finds a loss of \$1,000 on this contract, he can look over the charges and find what costs exceeded the estimate. For instance, if the estimate included \$3,000 for brick, and the charge for brick was \$3,200, he can refer to the records and find if there was an excess amount used, or if the cost was greater than was anticipated.

All this is verging on the use of simplified bookkeeping for standard cost accounting purposes, and for the detection and elimination of wastes. So a further discussion along these lines would lead us too far afield. But enough has been said to show that if a contractor really wishes to know how he makes out on each contract, this system will give him the desired information.

System Applicable to Other Lines

And now let us turn to one or two other lines of business to which this system is equally applicable.

Consider a general store, either wholesale or retail; or a jobber; or any business in which material is bought for resale, but none of which is manufactured by the company itself. Such a company—and when we use the word "company" we include individual proprietorships, and partnerships, as well as corporations—such a company will need one additional pair of columns, to be headed "PURCHASES."

To this account is to be charged all material bought for resale. If it is bought for cash, credit Cash; if by check, credit the Bank; if on account, credit the seller under Accounts Payable.

Operating Register Is Flexible

At the close of the month this account is closed into the "Purchases" account in the General Ledger, the same as the other accounts.

Such a company will in general not require such an extensive classification of expenses as does a factory, and also the classification it uses will be quite different. But the same principles apply. The Operating Register is like a loom, and weaving back and forth among its columns one produces whatever pattern is required for each particular business.

Making a Recapitulation

When it comes to making the recapitulation of expenses for such a company, it is of interest to use a few additional lines to insert the sales and purchases also, for convenience of reference, thus:

Near the top of the recapitulation sheet, write "Sales" and

opposite this insert each month the amount of the sales. Drop down a line or two and write "Purchases," entering these each month. Then a line or two still lower down, write "Sales less Purchases," and insert the difference for each month. If the purchases exceed the sales, use red ink. Then follow with the recapitulation of expenses which it is desired to keep track of. The work will appear as follows:

JANUARY	
Sales	\$15,000.00
Purchases	11,000.00
Sales less Purchases	\$ 4,000.00
Salaries	\$ 450.00
Rent	150.00
Office Supplies	12.00
Fuel	17.00
.....	.
.....	.
.....	.
Total	\$ 3,200.00

Do not mistake the item of "Sales less Purchases" for gross profit. Remember that we have not taken inventories into consideration. But it is a figure well worth studying at all costs: for if the difference is in black ink, and is sufficient to cover the expenses; if this condition persists month in and month out; then one has a comfortable sense of security. That is, so long as his assets are not being appreciably depleted. On the other hand, in one case in the writer's experience the difference between the sales and the purchases was usually in red, showing that the amount received from sales was not even enough to cover the purchases; much less the operating expenses. It is hardly necessary to add that the concern referred to is no longer in existence.

If You Handle Building Supplies

Now let us consider another interesting phase: that of a dealer who handles several lines and wishes to keep each distinct. For instance, suppose a dealer handles sand, lime, brick and cement. He simply designates each of these by a number or a symbol in recording sales and purchases, making a recapitulation at the close of each month. In such cases three columns instead of one may be taken for the recapitulation each month, thus:

	January	
	Sales	Purchases
Sand	\$2,345.16	\$1,624.35
Lime	1,184.17	1,011.62
Brick	5,427.18	4,822.94
Cement	871.03	1,241.61
Total Sales.....	\$9,827.54	
Total Purchases		\$8,700.52
Sales less		
Purchases		\$1,127.02
General Expenses:		
Salaries	\$ 250.00	
Supplies	50.00	\$ 300.00
Selling Expenses:		
Salaries	\$ 350.00	
Advertising	100.00	450.00
Total		\$ 750.00

Of course there would be a much larger list of expenses, but this will give an idea as to arrangement.

This monthly summary, while not a profit and loss statement, is nevertheless a stride in this direction. And it is

quite an illuminating combination of figures where one does not, or cannot conveniently, take monthly inventories. For instance, if the difference between the sales and the purchases in one line is habitually low, with occasional lapses into red figures, one knows that line is not carrying its share of current expenses: tho it may be necessary to carry a losing line anyway for the sake of the other products.

What has been said here concerning different lines will apply to a store with different departments. These can be kept distinct by the same process.

Supplementary Recapitulation Sheets

In the Recapitulation of Expenses, figure 5, we show a charge to Labor (b) of \$8,761.23. Now this is as far as many, perhaps most, factories may care to go. If so, there is no reason for their going farther, any more than one should stay on a train until after it has stopped at his station and started again. In this instance, we have shown how to take care of the major distributions of expense. Others, especially those planning or using a modern cost system, will wish to know how this labor charge is distributed among the different departments. We therefore proceed to the next station.

Take another sheet, head it "Recapitulation of Labor," and set down the various classes we wish to keep track of. For instance,

Mixing and Grinding
Molding
Setting
Firing
Drawing
Miscellaneous

Some fire brick manufacturers use a classification far in excess of this brief outline, 25 classes being not unusual. In some cases there are different departments, such as machine and shape (or hand molding) departments, and it is desired to keep these separate, as well as to distribute the charges of each.

When we make the current monthly, or semi-monthly pay roll, we distribute the items according to these chosen headings, insert the amounts in this secondary recapitulation sheet, together with their total. The total must, of course, agree with that shown in the primary recapitulation sheet opposite Labor (b).

The Item of Repairs

Again, let us consider Repairs. In one case repairs at the first were all placed in a single group, and designated by a single letter or symbol in the Operating Register, with a single total in the recapitulation sheet. Later it was desired to make a further classification of repairs. The only change necessary was to add a number to the symbol already used, when inserting the item in the Operating Register. For instance, repairs for a dry pan were indicated by "r-27" instead of simply by "r" as formerly.

For such a sub-classification we use a sheet headed "Recapitulation of Repairs," set down the various classes of repairs of which we wish to keep track, fill in the amounts as taken from the Operating Register, and see that the total agrees with Repairs (r) in the primary recapitulation.

Just as the General Ledger accounts control the primary recapitulation sheets, so the items in these sheets control the corresponding secondary recapitulation sheets.

Remember This

An important point to keep in mind is this:

When it was decided to make a further classification of labor, or of repairs, or of supplies (for these, too were later sub-divided), it was not necessary to change the handling of the General Ledger, or anything else except to add the figures

Recapitulation of Expenses 1923		January	February	March
a	Superintendence		35000	
b	Labor		876123	
c	Raw Material		67211	
f	Fuel		65386	
g	Supplies		47291	
h	Tools		8203	
e	Live Stock Supplies		26910	
p	Fire Insurance		-	
r	Repairs		13215	
z	Miscellaneous		822	
	Total		1140141	
m	Office Salaries		7500	
n	" " Supplies		2437	
s	Selling Expenses		24840	
t	Telephone & Telegraph		5018	
y	Rent of Company House		8400*	
i	Interest		3841	
d	Discount		317*	
	Total		34919	
	Gross Total		1175060	
	Sales		1527483	

Figure 5. The Two Items of Divisions y and d Are Credits and Should Be Written in Red. They Are Indicated by Asterisks. This Must Be Remembered When Arriving at the Total \$349.19.

to the letters already being used in the Operating Register column used for the classification of expenses.

A company installing this system can begin with a simple list of major items, and can stop there: it can at any later

date introduce additional classifications, just as one may run the material from a dry pan over screens of any mesh without changing the pan. In this case, there are not even any tailings to go back to the pan!

Chapter VI—DEALING WITH CLAY MINE OR QUARRY AS A SEPARATE OPERATION

Most brick manufacturers have their own clay mines, or pits, or quarries, or other sources of raw material. In many instances such companies desire to have expenses connected with their raw material sources separated from their factory, administrative and selling expenses. Such a plan has everything to commend it, and with this system is easily accomplished.

Designate the factory by "A," the mines by "B." In such cases it is also a good plan to separate the administrative and selling expenses, calling them "C."

Now instead of one single pair of columns in the Operating Register under "EXPENSES," we use three sets of columns headed "OPERATING ACCOUNT A," "OPERATING ACCOUNT B," "ACCOUNT C," respectively. These names used in the heading are not entirely satisfactory, but the writer has never hit on any better designations. Call them what you wish, so long as you know what goes into each set of columns.

As checks are drawn for expenses, or cash paid out, or invoices entered, charge these in the proper column, accompanied by the proper symbol; thus, an invoice for supplies

for the mine would be marked "Bg" and set down under "B" with the symbol "g" added; repair invoices for the plant would be marked "Ar", and so forth.

Now let us see some of the advantages of this arrangement:

Suppose an invoice is received covering material supplied to both factory and mines. Of course one tries to secure separate invoices in such cases, but if he can do so at all times he is in a class by himself. Such an invoice is easily handled by charging each operation with its share and placing the total of the invoice under "ACCOUNTS PAYABLE."

Handling Freight Bills

Suppose one receives several freight bills from the railroad company, covering charges belonging to each operation: perhaps even some freight on sample shipments which are to be charged to selling or advertising expense; or freight on a shipment of office supplies: make out a check for the total amount, credit "BANK," and make the proper distribution. This is much simpler than to give two or more checks.

Suppose there is a supply of repair material at one opera-

tion and it is needed at the other: simply credit one operating account and charge the other, with a line in the descriptive space explaining the transfer. So far as the General Ledger is concerned, no new entries are required. Think what it would mean if each repair or supply account was carried in the General Ledger and an attempt was made to transfer material on the books!

Pay Roll Problems

When the mines and the factory are close together, the same pay roll is often used for both operations and a man may work in each place during a pay period. In such cases, merely distribute the charges according to the operations, distribute the deductions in the same manner, and credit the net amount under "ACCOUNTS PAYABLE."

Some manufacturers sell the product of their raw material operation to the factory each month, using the current market price: others at a price which will cover current expenses at the mine: others again at a standard, based on what the material should cost, regardless of what it does require in the way of expenditures.

So far as this discussion is concerned, it makes no difference what one of these methods is used: arguments regarding this belong to a work on cost accounting, not in one on bookkeeping. But some such method of charging the factory and crediting the mines should in any event be used.

Raw Material Charges

At the close of the month, an entry is made charging "OPERATING ACCOUNT A (c)" with the value of the material from the mine, crediting this amount to "Sales B" in the "GENERAL LEDGER" column. Do not credit this under "OPERATING ACCOUNT B." Do not mix operating expense and income.

Thus "Sales B" in the General Ledger and the amount opposite "Ac" in the recapitulation will at all times balance for each month.

Sometimes a factory mines part of its raw material and buys part. In this case they must use some other designation than "c" to indicate these outside purchases of raw material, and they must carry two lines in the recapitulation of factory expenses—one for material from their own mines, the other for raw material purchased outside.

Then in making up income tax statements at the close of the year, which require the elimination of inter-plant profits, these self-balancing entries may be easily eliminated without affecting the net profits as shown by the combined operations.

If the Plant Has a Coal Mine

Some factories also have coal mines from which they supply their needs, selling the surplus outside. This is handled as the raw material is handled in the above outline. In some cases the mine is distinct from the source of raw materials, in which case it may be desired to handle this as a separate operation. We can call the coal mine "C" and move the general expense designation along the line of the alphabet to "D." In one case there were six distinct operations, designated by the first six letters, so that the general expenses were appropriately labeled "G." If coal and clay comes from the same mine, of course any distinction in expense would be neither possible nor desired.

Where there is a sale of raw material to outside sources, these sales must be credited to the mining operations apart from sales to their own plant, since it is only the inter-plant entries which may be eliminated in making income tax statements. Also, one may set different prices on what he sells to himself and on what is sold outside, using standard, fixed, arbitrary or approximate cost figures for the inter-plant sales. In any case the company will wish its

outside sales of raw material apart from what it uses in its factory.

Three Primary Recapitulation Sheets

In the case of a plant with two such operations, we take three primary recapitulation sheets, heading them "Recapitulation of Operating Account A," "Recapitulation of Operating Account B," "Recapitulation of Account C," respectively. We set down on the first the corresponding set of charges, including the credit to the second for raw material: below, we set down for reference, the sales of brick or other manufactured products. On the second we place the charges for the second operation: below these we set down for reference the credit for material furnished the factory, and also any outside sales (without combining the two credits). On the third sheet we place the administrative and selling expenses.

Suppose the total of the credits listed on the first two sheets, both outside and inter-plant, exceeds the total of the charges on the three sheets; then we know that when all bills for outside sales are paid, there will be sufficient to meet all charges which have been written up on the books for the month. This, of course, should not be confused with a statement of profits. On the other hand, if the reverse is true for a few months in succession, it does not mean that there is a corresponding loss, as one may be putting a quantity of finished product into the stock sheds, or may be laying in a stock of supplies in anticipation of a rise in price or difficulty in securing them later; but it does mean that one must find somewhere the money to meet the bills.

This information is valuable to any manager, where a monthly profit and loss statement is not made up. The facts are easily collected. And, if standard books on accounting, written by recognized authorities, are any criterion, securing this data is accompanied by a decided simplification of accounting methods.

Two or More Factories, Stores or Banks

Suppose a company has two or more factories. All that is required is to set up an operating account for each factory. One can then handle any variety of transaction affecting either factory, or both, or inter-plant. He can distribute salaries of a general superintendent according to any desired basis.

The same reasoning follows in the case of two stores owned by the same company; or where the company owns a supply store and a factory: or they may own a brick plant and conduct a general building supply business.

Sometimes a company carries accounts in two banks. In this case, we have two headings in the Operating Register, Checks can be deposited or notes discounted at either bank, with no change in the contra credit to Accounts Receivable, Notes Receivable, or other source of revenue. Checks may be drawn on either bank and applied to Accounts Payable or to current expenses. Funds may be transferred from one bank to the other. This is most likely to occur where there are two or more factories and it is desired to carry a bank account in the locality where each factory is situated.

* * *

A. C. S. SILVER JUBILEE, FEBRUARY 12-16

February 12 will mark the beginning of what, it is expected, will be the greatest convention of ceramic men that was ever held anywhere. This will be the occasion of the silver jubilee of the American Ceramic Society at Pittsburgh, Pa.

A rousing reception is assured all delegates to this convention and the local committee is making plans to give its guests an enthusiastic welcome.

General sessions will begin on the twelfth and the division

meetings will be held February 13 and 14. February 15 and 16 will be devoted to plant visits in Pittsburgh and neighboring towns. Pittsburgh is so located that practically every kind of ceramic plant is within easy reach of the city.

The program, both for the general sessions and division meetings, contains a great number of exceedingly interesting papers, technical and otherwise. The Refractories Division especially has a great number of papers and colloquiums on its program and everyone is sure to find something of interest in it.

Among the subjects to be covered by the Heavy Clay Products Division are drying, burning, elimination of waste, scumming, getting rid of limestone pebbles, automatic stokers

and many other extremely interesting topics. There will be a total of 20 papers presented, and a general discussion on kiln burning economies will take place.

All those who are planning to attend the American Ceramic Society convention are urged to get a railroad certificate when purchasing their ticket to Pittsburgh. If every one does this it will insure a half fare on the return trip. Also, hotels in Pittsburgh during the week of February 12 to 16 are sure to be crowded and it would be well to make your reservation for rooms immediately.

General sessions will be held in the Wm. Penn Hotel, and division meetings at the Fort Pitt Hotel. Other good hotels are the Seventh Avenue Hotel and Hotel Henry.



Ask Eastern Paving Brick Men to Increase Scope

THE EASTERN Brick Manufacturers' Association held its fourth annual convention at New York City on January 11. The meeting was very well attended, and a majority of the members were present.

Altho this association is but four years old, it has done remarkably good work in the short time of its existence. It is a branch of the National Paving Brick Manufacturers' Association and consists of manufacturers who find their principal markets in the East.

The program of the meeting consisted for the most part of reports by field engineers and others of the association. Considerable time was devoted to discussions relative to the manufacturing and marketing of paving brick and some very excellent ideas were brought out.

Discuss Simplification Work

Among the speakers from outside of the organization who addressed the meeting was E. J. Mehren, editor of Engineering News Record. Mr. Mehren talked quite extensively on the subject of elimination of varieties. This is a problem which paving brick manufacturers were among the first in the American industry to solve, having reduced the number of sizes and varieties from a total of 66 to 7.

The report of Wm. C. Perkins, secretary and chief engineer, outlined in a comprehensive manner the problems which the association must solve and the work which must still be done. Mr. Perkins said that in his opinion paving brick manufacturers did not receive their just share of the road construction work which has been done in the eastern territory in the last few years. This has been due to a number of causes, not the least of which was high freight rates. While in 1922 prices had gone down considerably, the possibilities of a reduction in freight rates held up shipments, Mr. Perkins said, and less than 125,000 square yards were shipped the first few months. The coal strike also crippled many plants, and in view of these facts it is surprising that manufacturers were able to move the 1,413,042 square yards which were moved up to November 1. Mr. Perkins said that if it had been possible to ship all of the brick ordered 1922 would have been the biggest year in the association's history.

Must Teach Highway Engineers

One of the obstacles which paving brick manufacturers must overcome is the tendency of highway engineers to build as many miles of hard surface roads as possible without special regard to the worth and quality of these roads. This naturally frequently excludes paving brick.

Mr. Perkins urged that the association increase its activities; that a large field force be engaged, and that some local advertising be done. In order to make this possible Mr.

Perkins advocated that the assessment be increased to \$.04 per square yard.

In Mr. Perkins' opinion simplification work could be carried still further. His suggestion was to standardize on a brick $3\frac{1}{2} \times 3\frac{1}{2} \times 8\frac{1}{2}$ inches, with lugs or without lugs. This would give the industry a standard size brick of three types, wire cut, wire cut lug and repressed.

Sell Brick on Own Merits

Edward E. Duff, formerly western district engineer of the association, but now secretary of the National association, made an interesting report covering his activities in the past year. In the course of his report he made valuable suggestions regarding effective promotional and sales work. He remarked that a trip thru many towns in Pennsylvania would afford an interesting comparison between the highways paved with brick and those surfaced with competing materials. Such a comparison almost invariably turns out to the advantage of paving brick.

In selling paving brick Mr. Duff urged that paving brick play fair with its competitors. "It is just as easy, and it is much more to your credit and personal satisfaction to sell brick pavements on their merits than on the demerits of competing materials."

Should Have Construction Engineer

The impression that the price of paving brick is extremely high and that it was very hard to get is prevalent among engineers, contractors, councilmen, board members and officials, stated J. M. Perkins, district engineer, in his report. He reported that many paving brick jobs were lost due to this erroneous idea. Mr. Perkins made the suggestion that the association appoint one engineer as construction engineer, whose duty it would be to go from place to place, taking charge of construction and inspecting work under construction. A careful survey by Mr. Perkins of western and central New York indicates that the outlook for 1923 is very promising and that many towns and cities will specify brick.

The convention was considered highly successful in every way, and members came away well satisfied that much will be accomplished in 1923.

Officers elected for the ensuing year are as follows:

President, R. L. Winslow, 41 E. 42d Street, New York City; treasurer, R. T. Hutchins, Wheeling, W. Va.; secretary, Wm. C. Perkins, Philadelphia, Pa.; vice-presidents, W. W. Cunningham, Pittsburgh, Pa.; F. F. Stowell, Olean, N. Y.; C. C. Blair, Canton, Ohio; J. W. Hall, Baltimore, Md.; governor, C. P. Mayer, Bridgeville, Pa., and alternate, D. R. Potter, Clarksburg, W. Va.

EFFECT OF NEW TARIFF ON MANGANESE

The new tariff act, which became effective September 21, 1922, provides for a duty of \$8 a ton on manganese ore containing 40 per cent. of manganese, \$9 a ton on ore containing 45 per cent. of manganese, \$10 a ton on ore containing 50 per cent. of manganese, and so on. Manganese should therefore bring an average price on the eastern seaboard amounting to the present average price of foreign ore plus about \$9 a ton. The new tariff has not yet greatly affected the domestic manganese market, for even under its provisions not many domestic mines can be operated at a good profit; but the owners of mines that have heretofore been worked profitably have shown a renewal of interest in the industry, and some of the mines that are already developed and that yield ore of high grade will probably be reopened.

* * *

SOME NEW RATES ESTABLISHED

The Interstate Commerce Commission has just handed down an opinion and order in two cases, one of which was filed two years ago. The first complaint was filed by the Mason City (Ia.) Brick & Tile Co. The commission has condemned the rates on brick from Mason City to destinations in Nebraska and South Dakota, east of the Missouri river and into southern Minnesota, as unreasonable, compared with rates from the Kansas Gas Belt to Nebraska, and from competing producing plants in Iowa and southern Minnesota to South Dakota.

**Wisconsin Men Expect to Get Lower Freight Rates**

THE IMPORTANCE of finding an efficient method of burning brick so that the cost of production might be reduced was discussed with much thoroughness at the Twenty-second Annual Convention of the Wisconsin Clay Manufacturers' Association, held at Milwaukee, Wis., January 24 and 25.

Other important problems came up for discussion during the course of the meetings and such problems as dealer distribution and railway rates received considerable of the convention's time. The meeting was well attended, approximately 20 delegates attending the opening session.

The meeting was opened Wednesday afternoon, January 24, the morning having been devoted to getting acquainted and registration. President John Ringle made a brief address calling attention to the importance of conventions and urging the delegates to take full part in the discussions. He introduced P. W. Trimborn, of the Crude Oil Gas Systems Co., Milwaukee, who outlined many advantages which oil has over coal in firing brick kilns. Mr. Trimborn stated that despite the remarkable results obtained in many instances by the use of oil it was surprising to note the total lack of attention which is generally given to efficiency and economy in the use of the oil. Mr. Trimborn also stated that due to the great savings possible with oil an oil burning installation should pay for itself within a year after its installation.

To Burn Commons in Down-Draft Kilns

This talk was discussed by Robert Guhr of the South Milwaukee Brick Co., and A. O. Zerenner, Zerenner Bros., New London, Wis. Mr. Zerenner, during the course of the discussion mentioned that his company is now installing a system of burning by forced draft with screenings. If this proves satisfactory Zerenner Bros. will build down-draft kilns to burn their common brick.

A. W. Hilker, of Racine, gave an interesting talk on the Relations of the Manufacturer to the Dealer. Having been

The other case was filed by Ballou Brick Co. and the commission has condemned the rates from Sioux City and Sargents Bluff, Ia., to destinations in Nebraska, South Dakota, east of Missouri river and in southern Minnesota, as unreasonable and unduly prejudicial in comparison with rates from producing points in Iowa, Kansas and Minnesota to same destination territory.

The commission has seen fit to handle these cases together and in both instances provide in their orders mileage scales as maximum.

The Mason City Brick & Tile Co. case is Docket 11672, opinion 8178 (77 I. C. C., 22-31), and the Ballou Brick Co. case is Docket 12708, opinion 8176 (77 I. C. C., 4-21).

Shippers who are interested in production or sales in these territories should obtain copies of the above orders so as to carefully study the rates therein provided, since they are too lengthy to reproduce here.

* * *

U. S. DEPARTMENT OF AGRICULTURE BULLETIN

Among the recent publications of the United States Department of Agriculture is one of interest to the clay products industry discussing Portland Cement Concrete Roads. This information was compiled by James T. Voshell and R. E. Toms, Bureau of Public Roads. The bulletin may be had by applying to Chief of the Division of Publications, United States Department of Agriculture, Washington, for 15 cents.

a manufacturer of brick at one time Mr. Hilker has a good insight into both sides of this question. He stated that the dealer should have the manufacturers confidence and that the manufacturer should at all times keep in close touch with his dealer or dealers. He also outlined the advantages to the manufacturer of marketing thru the dealer. After considerable discussion on this question the meeting adjourned.

C. B. Thwing, Ph. D., manufacturer of Thwing pyrometers, was to have spoken on Burning Brick with the Aid of Pyrometers, but could not be present. A copy of his paper was distributed among the delegates.

Freight Rates Question

J. E. Randall, Indianapolis, in speaking on Our Great Need, said that clay manufacturers should work for reduced freight rates and lower production costs. To the end that the latter might be accomplished it is necessary to have an accurate cost finding system.

John Ringle, chairman of the Committee on Freight Rates, spoke of the work accomplished by this committee since it began work. Thru the efforts of the committee and A. E. Solie, its attorney, a reduction in rates of 1½ cents per 100 pounds on short hauls was obtained. The railroads, however, protested this decision and asked for a rehearing. The petition was granted and rates in Wisconsin are still exorbitantly high. It is hoped that when the case is called again a favorable decision will be obtained. All Wisconsin manufacturers should get behind this movement and back it up financially as well as otherwise.

The afternoon session Thursday was devoted to reports by officers and committees and the result of nominations was announced. Officers for the new year are: A. O. Zerenner, Zerenner Bros., New London, president; Samuel Gunther, Port Washington, vice-president; Oscar Zimbal, Sheboygan, secretary; and A. O. Wachter, Sheboygan Falls, treasurer.

UNIVERSITY OF ILLINOIS

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

PLANT BUILT TO SAVE LABOR

DESIGNED with a view to efficiency, low overhead, and convenience, the new plant of the Crescent China Co., at Alliance, Ohio, has been declared by observers to be the last word in generalware plant construction.

Altho this new plant has but four bisque kilns and three glost, the possible capacity of the shop is equal to that of an ordinary nine kiln shop. The bisque kilns are 18.6 feet in diameter, and the glost kilns are the standard 16.6-foot size. Because of the size of the bisque kilns, the plant is able to gain in production.

Both batteries of glost and bisque kilns are "sunk" below the floor, so that the doors of the kilns are on even keel with the floor. Elimination of steps is said to be an improvement in kiln departments that will save an hour a day in loading kilns.

Kiln Drawers Climb No Steps

In drawing kilns, no steps are used by kiln drawers. These workers will be found on the floor even with the bottom of the kiln, and they will take the baskets from the door around the kiln, probably 20 feet to a platform, where the baskets will be deposited, and then taken away by other employes in the bisque and glost warehouses.

Every piece of machinery in the Crescent plant is motorized, individual motors being attached even to each of the ten jiggers. The Philadelphia drying mangles are electrically operated.

Heating System Also Used for Cooling

The American Blower Heating system has been installed, and there are only ten heaters thruout the big building. This system is so designed, that in the winter season warm air is forced thru the plant, and in the summer season this can be converted to cool air.

Coal is to be used for firing the bisque kilns and the battery of 12 tile decorating kilns, while the McFall oil burning system will be used in firing the glost kilns. There is a battery of six decorating kilns, and this department is separated from the decorating department by a closed brick wall. The three doors leading from the decorating department to the decorating kilns are self-closing, and of fireproof construction. In fact, the plant thruout is as near fireproof as it is possible to design.

Raw Materials Stocked Inside

All raw materials are stocked within the plant, there being no bins outside for the storage of clays. It has been determined that a saving in labor and a better piece of merchandise can be produced when clays are under cover, as there is

always to be found an excess of moisture in this or that clay when allowed to remain exposed to the elements during the seasons. This has been found especially true in the winter seasons.

While no sagger machine has been installed in this plant, the future intent of the Crescent interest is to install one. Grinding pans and pug mills have been erected in this department and the making of saggars can begin at any time. Instead of using a board base for the placing of saggars for them to dry metal bases have been designed.

Jiggermen Use Only One Boy

In the clay department jiggermen will use only one boy, the service of the second being eliminated because the shelving of the stove room is within arm reach from the left side of the jiggerman. To his right is the batter out, and to the right of this worker is the finisher. The three work side by side.

These upright revolving stove rooms are quite similar to those designed and in use at the plant of the Sebring Pottery Co. They are inclosed and, because of the design, green ware is dried quickly.

In the decorating department two circular decorating "decal" machines have been installed. By the use of these machines, it is impossible to nip or chip ware as it is placed in the machine. These two machines are possible of large production.

Store "Decal" in Safe

An "L" shaped safe has been erected in the decorating department, the long section being used for the storage of decalcomania. Entrance to this section is from the decorating department. Large quantities of "decal" have already been received.

Because of the design of the plant only one 150-horse-power boiler has been erected. But 15 pounds of steam is required for all purposes. This in itself will prove to be a saving in fuel consumption. Coal is dumped from cars right into the boiler room from a New York Central siding now nearing completion. The stock of coal, therefore, is always before the boiler.

S. I. Morley Managing the Plant

Business and plant management will be under the sole direction of Samuel I. Morley, while Herbert Goodwin, of East Liverpool, will be plant superintendent. The clay department will start on a production basis February 5 and the decorating department will start at about the same time. All the glost and bisque ware the Crescent Company had before it removed from Niles, Ohio, has been put in the bins in the new shop. The same shapes that were used at Niles will be used in the Alliance plant, altho a little later a new shape will be featured entirely.

Plant Scheme Result of Study

The whole plant scheme was the result of very close study and observation of recent improvements made in dinnerware plants and of the most recently designed ceramic mechanical equipment.

BRITISH POTTERS REDUCE PRICES*By Special English Correspondent.*

The new year opened with the pottery makers of Staffordshire determined to increase business, the first step towards this end being a general price revision of some magnitude, to take effect from the beginning of January, 1923, and embracing such goods as china and earthenware. Both the Earthenware Manufacturers' (Home Trade) Association and the English China Manufacturers' Association have announced extensive price revisions involving reductions and adjustments, the cut on the cheaper grades of china goods being $7\frac{1}{2}$ per cent. For higher class goods the reductions vary. The new prices for earthenware goods now in effect apply to the home market only, the prices on export earthenware having been reduced last October. The revised china prices, however, affect export as well as home markets.

Earthenware price reductions are not confined to tea, toilet and fancy wares. Drastic cuts have been made in the cheaper and commoner grades. These price adjustments are part of a definite policy for the standardization of the different china grades. It was the action of the earthenware folks in bringing down prices that prompted the china manufacturers to revise their own lists. The latter did not contemplate reducing their prices until next March. The earthenware makers hope to stimulate the spring trade with these price reductions. The china makers, recognizing the folly of hanging on now until March, have anticipated that month's reductions and cut their prices immediately.

Despite this scramble for broader markets and the lowered value of the pottery products, the potters say the new prices are not justified by the present costs of production. And this undoubtedly is true. Labor costs, freights and the cost of various raw material have not diminished to such a large extent. Under the circumstances the china houses do not anticipate a further price cut in March, when the wage question is scheduled for settlement for the next 12 months.

A review of the British pottery trade for the past year shows that there have been three reductions in the 12 months in the china section, the lower grade goods now being $27\frac{1}{2}$ per cent. cheaper than at the end of 1921. There have been two reductions in earthenware prices in the same period. In all the branches of the pottery industry the most drastic cuts have been those in "working class" pottery goods. These are lines most subjected to fierce competition from such folks as the Germans, Czecho-Slovaks and Japanese and those British pottery makers not in the manufacturers' association.

The position of the pottery industry in the first month of the new year is much better than a few months back. Prices are now stabilized (it is hoped) for good. Demand is improving. Stocks are low. Present home production is for February delivery. The potters are planning for a big spring offensive. More new designs than at any period since 1914 will, the potters say, be put on the market.

* * *

SANITARY POTTERS' STRIKE CONTINUES

There is practically no change in the strike situation in the sanitary pottery industry. Here and there desertions from the ranks of the strikers are reported, and manufacturers who have been operating their plants under the American plan, or open shop basis say production is increasing, and that new men are rapidly acquiring the details of the trade.

The casting system is being employed in many shops, manufacturers abandoning the pressing feature of the business. Where pressers made five pieces of ware per day, casters by that method can make from eight to ten pieces. The casting system has been in vogue in western plants for some time, but had not been introduced in a general way in the New Jersey shops.

The Executive Board of the National Brotherhood of Operative Potters cautioned the sanitary workers not to strike, but the advice went unheeded. Two injunctions have already been obtained by manufacturers against former employees from interfering with open shop workers. In no instance were the national officers of the Brotherhood named in any of these pleadings.

* * *

EXTENDS ANTI-DUMPING LAW

The Customs Service has announced that it has extended its anti-dumping regulation on earthenware from Czecho-Slovakia to chinaware from the same country.

* * *

PAIGE POTTERY BEING REBUILT

The plant of the M. B. Paige Pottery Co., Peabody, Mass., recently damaged by fire, will be rebuilt at once, work having already been started on the foundations.

* * *

TRENTON POTTERIES BUILDING ADDITION

The Trenton (N. J.) Potteries Co., North Clinton and Ott Streets, manufacturer of sanitary ware, has plans in progress for the erection of a new four-story plant addition, 72x155 feet, estimated to cost approximately \$100,000. W. A. Klemann, First National Bank Building, Trenton, is architect.

* * *

INCREASE CAPITAL TO \$250,000

The Frenchtown (N. J.) Porcelain Co., has arranged for an increase in capital from \$100,000 to \$250,000, for proposed general expansion. The company specializes in the production of electrical porcelain products, principally for spark plug service.

* * *

HOTTINGER GIVES EMPLOYEES SHARE IN BUSINESS

Gustav Hottinger, president of the Northwestern Terra Cotta Co., the largest manufacturer of terra cotta in the world, came to Chicago in 1876 as an immigrant from Vienna, Austria. Two years later, with two associates he began to manufacture clay products in a small way. The capital of this partnership was \$3,000, and from this modest beginning grew the now giant enterprise, the Northwestern Terra Cotta Co., which has assets of over \$4,000,000. When Mr. Hottinger first began to work with clay he visualized a company which would manufacture terra cotta on a commercial scale.

His dream having been realized now, 45 years later, Mr. Hottinger has decided that it is time for him to take a rest and so he is turning over to his faithful employees the business which they have helped to make successful. To accomplish this a reorganization was necessary which created 30,000 shares of common stock, no par value, 26,000 of these shares have been distributed among 36 employees and 4,000 shares are being held in reserve for future distribution. Employees are paying for the shares at the rate of \$5 per share which is only a fraction of their value.

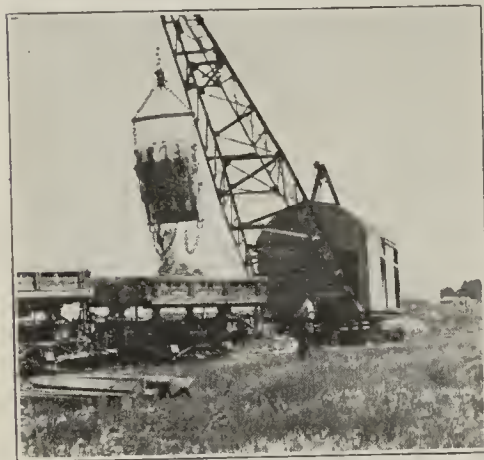
Mr. Hottinger will retain \$1,500,000 in seven per cent. preferred stock but will withdraw as the active head of the organization. For some time he has not been as active in the management of the company as he formerly was altho he was still of great help with his counsel and advice.

To finance the reorganization project \$1,500,000 of first mortgage real estate bonds bearing six per cent. interest have been sold to the Central Trust Co. One-third of the issue was disposed of to the former stockholders.

Management and Superintendence

ONE INSTALLATION SUPPLIES THREE PLANTS

The Mason City (Ia.) Brick & Tile Co. has a unique method of gathering the clay and shale for part of its output. This company has six plants and three of them are supplied by one set of equipment for digging and for crushing. A large Lidgerwood dragline excavator driven by electricity as shown in one of the illustrations is located on the top of the deposit. The depth of the deposit is about 40 feet, that is



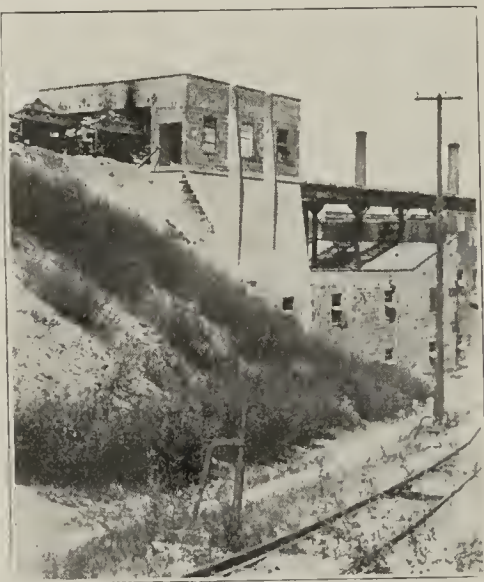
Dragline Excavator Which Digs Clay from a Deposit 40 Feet Deep.

the depth at least which is worked. This machine drags the scraper or bucket up the bank, thereby obtaining a uniform and complete mixture of the raw material. This is dumped into cars each holding about six tons, which run on a standard gage track. These cars are made up into trains of 5 to 6 cars and hauled by a steam locomotive.

After 4 scraper loads have been dumped into each car the train is moved to an electric shovel which loads one yard of surface clay on top of the shale.

The two digging machines using electricity for power require the minimum amount of men. The total number for operating the excavator, the electric shovel and the steam locomotive, including a switchman, and delivering the material to the crushing plant, is only five. As this equipment will deliver as much as 800 tons per day, when operating at full capacity, the unit cost is very low.

The large dragline excavator is also used for stripping off a few feet of overburden and throwing it into the old workings. There are in addition several advantages along this line. Water and snow cause no difficulty as the machine is entirely removed from any pit trouble such as encountered wherever the machine is located at the base of the deposit. Then again rain and snow does not cause as much trouble with the track for the locomotive and cars as it would if located in the pit. This same track being located on the level requires less power for hauling the material to the crushing plant than it would if built on an incline.



The Clay Cars Being Taken into the Crushing Plant; Upper Left Hand Corner.

The cars loaded with the material enter the crushing plant at the top near the left of the illustration. When dumped the material goes into a bin at the bottom of which there is an apron feeder.

From there it goes into a granulator, then thru a disintegrator, is conveyed to a roll crusher and finally falls onto the conveyor which takes it to the distributing part of the crushing plant.

An extensive set of elevators and conveyors, some of which can be made to run in either direction by the use of clutches, permits of the delivery of the clay to a large storage bin or the delivery for use direct to one, two or three plants or the clay may be taken from the storage bin and delivered to one, two or three plants.

The receiving or storage bin has a capacity of 5,000 tons and is equipped with 27,000 square feet of radiating surface heated by steam.

The economy of this installation is shown by the fact that only 20 men are required now to accomplish the same work that formerly required 36.



Dragline Excavator Loading Clay Cars. In Addition to Digging the Clay the Dragline Also Removes the Overburden.

PUT IN A STOREROOM—IT PAYS

A department in most plants which is given but little consideration is the storeroom or supplies department. This is one of the places where much money can be saved by keeping a close watch on small supplies. The What Cheer (Ia.) Clay Products Co. has a storeroom in use and says it is so satisfactory that they would not think of going back to the old method.

In a letter to Brick and Clay Record the company says:

"Some years ago in checking up, we found we were losing considerable small tools, such as shovels, picks, light globes, and so forth, and so in 1916 decided to build and open a storeroom department.

"The building was erected off our machine and carpenter shop, and is approximately 24x50 feet. A small office was partitioned off in one corner and bolt racks, iron racks and shelving built in.

"After completing the building, men were sent out to gather up all tools, iron and so forth, which was placed in racks and shelving prepared for same, and a complete stock of bolts, fittings, valves, belting, and machine repairs were ordered, and a man put in charge. His duties are to check out and charge to the different departments, everything that goes out. All tools are charged to the party who receives them, and credit is given for their return. This is also true with light globes; if one is broken, it is returned and a new one given in its place.

"The storekeeper keeps the time, looks after the pyrometers which are located in this building, and takes stock of the yards on the 1st and 15th of each month. Our oil is also kept in tanks and checked out to the different departments by the storekeeper.

"Before installing the storeroom, our stock of iron and steel was kept in the blacksmith shop, and whenever a small piece was wanted, it would invariably be cut off a full length bar. Now, when a piece of iron is wanted, the storekeeper will hand out a waste piece or an old piece of iron, of which there is always plenty, and it is surprising what a saving is made just along this one line.

"Since opening our storeroom, we have never shut down for want of extras, as we always carry repairs for all machines in stock, and our advice to brother manufacturers is that if they do not already have a storeroom, let this be one of their first improvements, as we are sure it will be a big money saver."

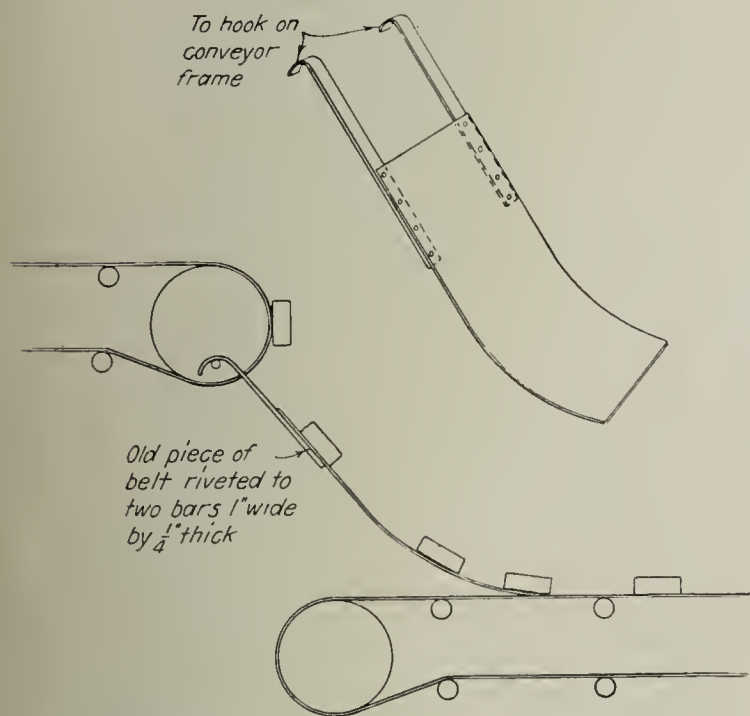
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PROLONGING LIFE OF BRICK CONVEYOR

The belt conveyor is being used more and more in the brick and clay plant. The latest use to which it is put is the emptying of kilns, the belt being mounted on a portable frame. These portable belt conveyors come in sections, 15 to 25 feet long and can be built to carry the material either on the level or at an angle.

We all know that on a belt conveyor the greatest wear takes place at the loading and the unloading points. Being short, the portable belt, wears many times faster than a long belt, because a given point on the belt passes the loading and unloading points oftener than it would on a longer belt. If we consider the abrasiveness of the brick and the height from which they are dropped and even thrown onto the belt, it is really remarkable that any belt can withstand such punishment.

The life of most of these belts could be doubled. This would mean not only a saving in the belt itself, but a saving in labor and idle equipment as well.



The Construction of This Belt Protector Can Be Easily Understood from the Sketch. The Pins onto Which the Protector is Hooked are Fastened to the Outside of the Frame of the Conveyor and Do Not Pass Thru the Head Pulley, as Might Be Inferred from the Sketch.

As I have already mentioned, the greatest wear occurs at the loading and the unloading points. Primarily at the loading point. If it were possible to first set the brick in motion—in the same direction and at the same speed the belt is

THE IRONTON STORAGE BATTERY LOCOMOTIVE

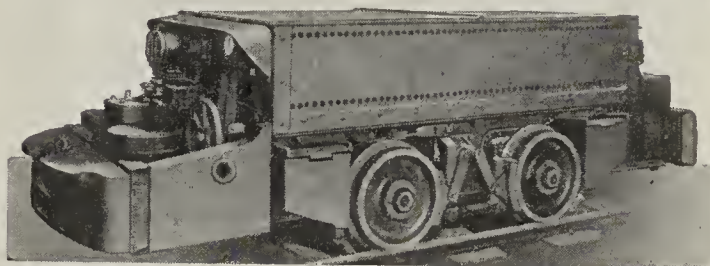
Take Indiana, for instance. Since July, 1918, 81% of all storage battery locomotives purchased in that state were Irontons. This must indicate superiority in quality and service. Ask our Engineering Department about Ironton Storage Battery Locomotives for your hauling.

THE IRONTON ENGINE COMPANY

IRONTON, OHIO

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816 Robson Prichard Bldg., Huntington, W. Va.
1618 Arcade Bldg., St. Louis, Mo.
511 Widener Bldg., Philadelphia, Pa.
905 14th Street, Denver, Colo.
409 Weber Road, Columbus, Ohio
1308 American Trust Bldg., Birmingham, Ala.
711 First Nat'l Bank Bldg., Fort Smith, Ark.
61 Marion Street, Seattle, Wash.



Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

TORONTO PANS



244-245

are used to-day in the most successful plants in the country. They solve grinding troubles, save labor, require less maintenance, and upkeep, and improve quality of product.

Write for particulars.

THE TORONTO FOUNDRY & MACHINE CO.
TORONTO, OHIO



10 FOOT
TORONTO
DRY PAN

traveling before allowing the brick to come into contact with the belt, the wear would be greatly reduced.

Of course that is almost impossible. But why not try, and come as close to the ideal condition as we can? It will most assuredly pay.

The accompanying sketch shows a suggested method for overcoming the damage that is bound to result when sharp brick drop onto the belt at a perpendicular, from a height of many inches, often feet, with the belt pulley acting as an anvil.

By A. M. Oliver.



MAKING CONCRETE MORE RELIABLE

The reliability of concrete construction is likely to be increased, and the cost in some cases reduced, by the application of a newly developed method of measuring sand, which is now being tested at the Bureau of Standards of the Department of Commerce. The method has been termed the "inundation method" and consists of measuring sand in a container which has been partly filled with water before the sand is put in, so that when the sand is in, the water is up to the top and the sand completely soaked.

The volume occupied by a given amount of sand when shoveled into a measuring device varies with the moisture content of the sand; the difference in measured volume between dry and moist sand being usually from 10 to 15 per cent. and occasionally running as high as 50 per cent. But it is found that if the sand is completely soaked or "inundated," uniform measuring results can be obtained no matter how much the original moisture content may have varied.

In making concrete the proportions of cement, sand, stone, and water are so chosen as to get the required strength and workability with a minimum of cement, since the cement is the chief factor in the cost. Inaccurate measurement of the sand may result in too large a proportion of sand, in which case the concrete is too weak; or in too small a proportion of sand and hence a concrete too rich in cement.

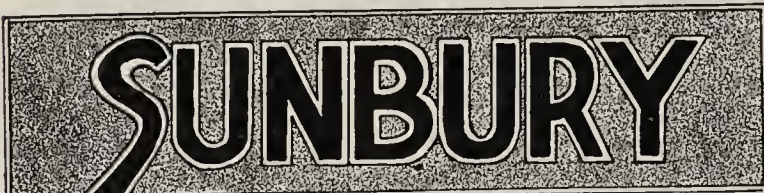
But this rich concrete is not necessarily stronger than the concrete the contractor intended to make, for the sand has brought in some water in addition to that which is added on purpose; and if this extra water is not allowed for and the amount of water added correspondingly decreased, the concrete will contain too much water. It will be sloppy and when set will not be dense enough to give the necessary strength. The contractor therefore is merely wasting cement and doing good to no one.

It is hoped that with the inundation method it may be possible to specify concrete by the strength required rather than by arbitrary proportions. The contractor can then find the proportions of the materials he is using that will give the requisite strength and can adhere closely to these proportions. The result will be a concrete whose proportions are more nearly what they were intended to be, and with which a lower factor of safety can be used.



FERRIS, TEX., MAKES MILLION BRICK DAILY

The advantages of Ferris, Tex., recently were detailed over radio station WFAA, The Dallas News and Dallas Journal, by speakers from that progressive little Ellis County town. Speakers told of untold millions of brick which had been made from the shale found near Ferris. The brick industry, it was said, was responsible for the fact that the little city paid to the Southern Pacific Railroad approximately \$1,000,000 each year in freight. In fact, no other city of its size in the world makes as much brick as Ferris. The clay deposits of the eight plants, with a combined capacity of more than 1,000,000 brick a day, could not be exhausted in 1,000 years.



AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

SAWDUST AND SHAVINGS FOR FUEL

1,060. *Maryland—Please let me have all the information you have on burning brick in round down-draft kilns with planing mill refuse, sawdust and shavings mixed, for fuel. With coal costing \$8.70 per ton delivered, how much can I afford to pay for this material?*

Could it be fired with a blower—12 furnaces to a kiln? If you would consider this practical, how do you control distribution to each furnace?

From the data that we can gather, one ton of planing mill refuse is equal to about two-thirds of a ton of coal. If your coal costs \$8.70 per ton this would enable you to pay \$5.80 per ton for the sawdust and shavings on the same basis of heat units. However, there seem to be so many difficulties and special construction that it would be expensive to enable you to burn planing mill refuse. We doubt that you would find any economy unless this refuse would cost considerably less than \$5.80. In the Chicago district, the refuse costs about \$4 per ton. You would have to use some kind of Dutch oven with a forced draft, and even at that you would have difficulty with the refuse falling thru the grates.

One man consulted, suggested that you mix this refuse with your coal, thereby eliminating the expense of changing the construction of your fireboxes and the installation of any forced draft system. Another difficulty with the forced draft is, that it may carry some of the sawdust and other refuse up into the kiln and deposit it on the ware before it is fully consumed. This may injure the quality and color of the ware.

Isn't the price of \$8.70 high for coal?

Can any reader give additional information?

* * *

WHAT IS FAIR ROYALTY?

1,061. *Virginia—We have an opportunity to obtain some clay near our plant; however, the party wants to settle same at so much per thousand brick manufactured. We manufacture common building brick. Will you advise us the usual amount paid per thousand royalty on the clay in manufacturing common brick? In this way we only get the clay and do not have to buy the entire piece of land.*

In the central part of the country the royalty paid for clay varies from six or eight cents per ton to 15 cents per ton, the latter figure is for the higher grade of clay such as fire clay. We are of the opinion that for common brick, ten cents per ton would be high. This would amount to about 40 cents per 1,000 and would be a fine proposition for the owners of the land. At the same time you would not have any capital tied up in clay land.

Conditions of competition of other brick and also of other materials like lumber and stucco might make this 40 cent price entirely too high. In other words, you might not be able to show legitimate profits if you paid this royalty.

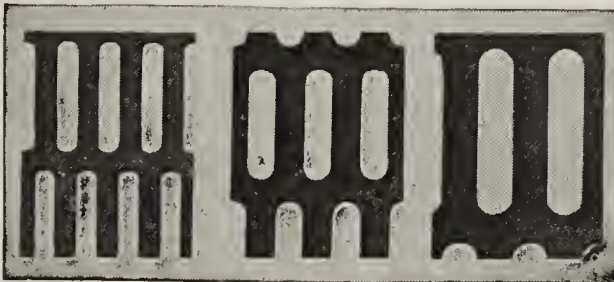
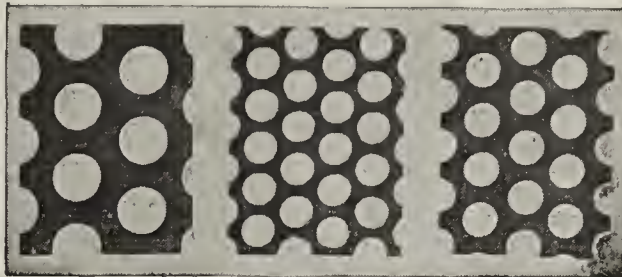
Has any reader any data that will apply to this case?

* * *

PLANNING TO BUILD NEW PLANT

The Ontario Shale Co., Ltd., 32 Sun Life Bldg., Hamilton, Ont., contemplate the erection of a brick plant.

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.,**

NEW YORK

CHICAGO
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Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
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Liberal samples and full information
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Grinding Plant: Plymouth Meeting, Pa.

Robinson's Clay Working Equipment

— includes —

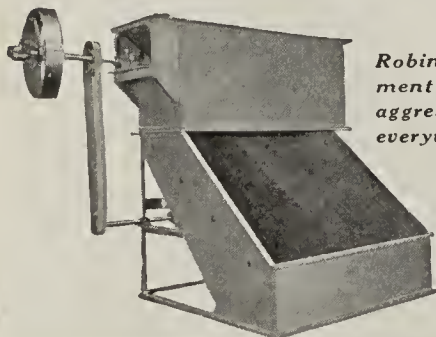
Kiln Bands Dryer Cars
Screens Pallets
Steel Rails and Portable
Track
Brick and Tile Machinery
Rock and Shale Crushers
Wire Rope—in fact, every-
thing for the clay plant.

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Dryer Cars and Clay Working Equipment
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Factory and General Office PITTSBURGH, PA.



*Robinson's Equip-
ment is used by
aggressive plants
everywhere.*



237

Drawn from the Kilns

**Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing**

FERRIS TO DEVOTE ALL TIME TO CLAY

Warren B. Ferris, president of the Continental Clay Co., of Columbus, Ohio, has sold his interests in the large office building in Columbus known as the Ferris Bldg., and will devote his entire time to the brick manufacturing business. All of the company's plants are operating and a large stock for the spring rush is being accumulated.

END CAME SUDDENLY TO GEO. DIETERICH

George I. Dieterich, formerly sales manager of the Chicago Retort & Fire Brick Co. of Chicago, later part owner of the Utica (Ill.) Brick & Clay Mining Co. and at the time of his death manager of the Lansing, Mich., plant of the Arthur C. Bird Estate, died suddenly at his home in Lansing, January 17. Mr. Dieterich was only 44 years of age and had always enjoyed good health. In fact he was feeling well up to the time of the stroke or attack in the evening of the 15th. He did not regain consciousness.

WISCONSIN CLAY PIONEER DIES

Herman G. C. Affeldt, pioneer brick manufacturer of Portage, Wis., died at St. Savior's hospital where he was taken five weeks ago after sustaining a broken hip as the result of a fall. His injury and suffering were followed by a paralytic stroke responsible for the end.

For 35 years Mr. Affeldt was an extensive brick manufacturer in that city and many of the city's oldest and most substantial structures stand as monuments to his industry and business activity.

PIONEER RELECTS OFFICERS

The Pioneer Brick & Tile Co., of Fresno, Cal., has reelected the entire board of directors and all the officers. P. W. Hastie is president and J. W. Fewell is vice-president. These, together with Charles W. Barrett, E. B. Walthall, and C. J. Ryland constitute the board of directors.

FROST BOOSTS HOLLOW TILE

The first issue of the Home Owner has just come off the press and contains an article by Howard Frost, president of the Los Angeles (Cal.) Pressed Brick Co. Mr. Frost in his article outlines the advantages of hollow tile construction over other methods. He urges that the builder build for permanency and economy and put into his home those things that make for comfort and durability. The Home Owner is a magazine with a circulation chiefly in Southern California.

LOS ANGELES MANUFACTURERS ADVERTISE

Despite the fact that brick manufacturers of Los Angeles are doing 40 per cent. more business than a year ago, they are not satisfied but are launching a campaign to promote building with clay products. The Brick Manufacturers' Association there is supplementing locally the national advertising of the Common Brick Manufacturers' Association of America. The book, photographs, and plans of 60 brick houses, recently issued by the national association are being distributed.

BRICK GETTING MUCH ATTENTION

As National Brick Week approaches it is worth while to note that more consideration is being given to the use of brick

in the construction of homes. In Oakland, Cal., in the East-Bay region, especially, public attention has been drawn by several attractive structures. And the notices being dropped into the daily press by the Common Brick Manufacturers' Association are receiving notice.

E. A. Dixon, secretary of the local branch of the Common Brick Association, calls attention to the splendid manual issued by the Common Brick Manufacturers' Association of America, together with the little book of plans, and the argument as to the relative expense of building. These the local association is busily circulating. They are giving first attention to the architects.

ONE OF CALIFORNIA'S OLD PLANTS

One of the oldest clay products institutions in the state of California is the Bakersfield Sandstone Brick Co. at Bakersfield in Kern County. It was 35 years ago that James Curran, but two years from Illinois, decided that if Bakersfield were going to grow it would have to have something to build with. His father had been a brickmaker in Illinois, so Mr. Curran readily saw the opportunity to launch the industry that has since furnished most of the brick of Bakersfield. Accordingly he bought a few acres a little piece out in the country—now in the city—and began.

From this small beginning the plant grew and has constantly been improved. A recent improvement is a spur track running over the tops of rock bunkers. Instead of oil, natural gas now is the fuel which burns the brick.

A feature which is demonstrated in this plant is the hereditary tendency of brick manufacturers. Mr. Curran has in the yards the sons of a number of those who helped him in the earlier day. He himself followed in his father's footsteps. Three of his sons are already associated with him. Another, Hugh, is attending the College of Ceramics at the Ohio State University, preparatory to joining the business. And Bob, the youngest, spends his vacations working in the yard. And the boys do this of their own choice, Mr. Curran says.

CLAY PLANT BECOMES BANK PROPERTY

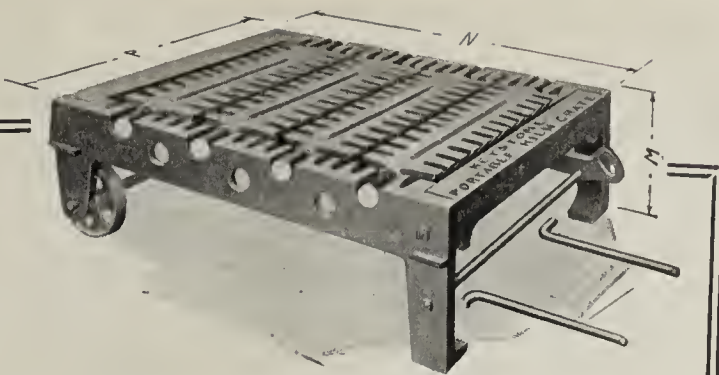
The plant of the Iliff (Colo.) Brick & Tile Co. has become the property of the First Bank of Iliff. The clay company was organized three years ago when it was discovered that practically an unlimited supply of good clay was available. It is believed that the bank will develop the company and operate the plant in 1923.

HOOD GETS BIG ARGENTINE ORDER

B. Mifflin Hood, president of the B. Mifflin Hood Brick Co. of Atlanta, Ga., was in Memphis, Tenn., recently on a visit to C. W. McDowell, manager of the company's Memphis office. Mr. Hood's company operates one of the few tile flooring and roofing plants in the South at Walden's Ridge, East Tennessee, and is now adding a second building to this plant. Recent shipments now on the way to destinations include 15 cars of tile chemical rings to the Argentine government for a big chemical plant at Buenos Aires; 12 cars of roofing tile to Nassau for a new hotel; 20 cars of tile to California via the Panama Canal.

ADD TO SCOPE OF TRADE SCHOOL

Plastering and carpentry will be added to the courses taught in the free trade school established by the Citizens Committee to Enforce the Landis Award, at 500 S. Throop Street, Chicago. The addition of these two courses will bring the number offered to ambitious youths and mechanics up to six. The other classes which have been in successful operation have had instruction in bricklaying, sheet metal, plumbing and painting and decorating. There are now enrolled 36 apprentices and 126 mechanics.



Reduce Your Burning Costs

by installing

Marion Portable Kiln Grates

They enable you to get *maximum heat* from your coal, *even temperatures*, as well as *better burns*.

Write for complete information today

MARION MACHINE FOUNDRY & SUPPLY CO.

P. O. Box 395

Marion, Ind.



Why Western Brick Co. of Danville Use Electric Steel Grate Bars—

1. Cost less.
2. They weigh from 4 to 5 lbs. less than iron.
3. Are free from breakage around yard.
4. Burn out much more slowly than iron.
5. Obtain double service because they can be reversed.
6. Easier to handle.

Write for Complete Information

ELECTRIC STEEL CASTINGS CO.
Indianapolis - - - Indiana

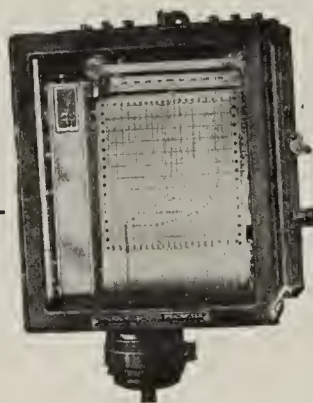
THIS WINTER

When winter sets in—and the thermometer begins to drop—when the snow falls and colder winds blow—how are you planning to hold even temperatures? Will they fluctuate with the weather, or will you have perfect control?

Bristol's Pyrometers afford a perfect control of all temperatures up to 3000° Fahrenheit. They accurately indicate and record, thus giving your burner immediate warning in case of sudden drop or rise in heat.

Ask for our latest catalog
AE 1401—the most complete py-
rometer catalog ever published

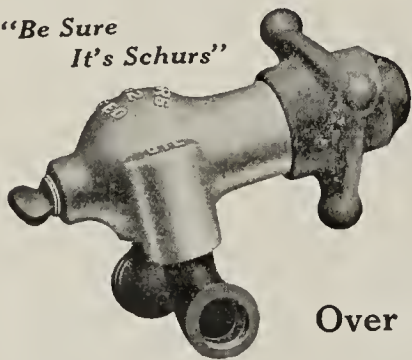
The Bristol Company
WATERBURY CONNECTICUT



FUEL OIL IN 1923

Install SCHURS BURNERS in your kilns this year. The labor saving alone will pay the cost of same in one season. Oil will increase your kiln turn-over 25% and give you more uniform product.

"Be Sure
It's Schurs"



*This Adjustable
Tip instantly
changes the at-
omizing point to
suit a low or
heavy fire. The
perfect Water
Smoking Burner.*

Over 70,000 in Use.

SCHURS OIL BURNER CO.

ESTABLISHED 1905

5332 Santa Fe Avenue

LOS ANGELES, CALIF.

CHICAGO HOME SHOW, MARCH 24-31

Chicago's Annual Own Your Home Show, which this year is being run by the Chicago Real Estate Board, will be held in the Coliseum, March 24 to 31, 1923. It is estimated that 73 per cent. of Chicago's inhabitants are living in rented quarters, and these people are to be shown how they can own their home. Figures seem to indicate that approximately 37,000 families in the city are inadequately housed.

1922 WAS 100% BETTER THAN 1921

Directors of the Gem City Press Brick Co., Quincy, Ill., reported at the stockholders' annual meeting that their business for the past year had been very good and prospects for 1923 are such that the building will reach a higher average for the ensuing year. During 1922 the company produced 2,400,000 brick, and of this number 1,600,000 were shipped to points outside of Quincy. They now have a stock of 821,000 brick to begin with and the plant will be opened in February, so as to fill all orders promptly when the building season starts. The production of the plant for the past year increased over that of 1921 by 100 per cent., which was not the plant's full capacity. The following directors were elected: Ezra Best, T. P. Castle, John D. Warfield, John T. Hummert and Geo. Hummert. The officers elected at directors' meeting were: Ezra Best, president; T. P. Castle, vice-president; John T. Hummert, secretary-manager, and Geo. Hummert, superintendent.

TRI-CITY TO INCREASE CAPACITY

Wallace C. Grant, cashier of the Aledo State bank, has been made secretary and financial manager of the Tri-City Brick Co., Carbon Cliff, Ill., according to announcement by the board of directors.

The directors announce that the capital stock will be increased to \$100,000 to provide for necessary expansion. At this meeting J. L. Buckley, whom Mr. Grant succeeds, will be appointed to direct sales in Chicago and the northwest territory with sales office in Minneapolis. Mr. Buckley will continue, also, to have supervision of the manufacturing plant.

Illinois territory outside of Chicago and eastern Iowa including the tri-cities will be handled from the general offices in this city through agencies in Davenport and other cities.

The Tri-City Brick Co. was organized in March, 1922, purchasing at that time the Argillo Works at Carbon Cliff, Ind. The plant was immediately converted into a face brick plant thru a complete rebuilding of the property and commencing in May of last year began the shipment of high grade face brick to its distributing agencies in Illinois, Iowa, Wisconsin, Minnesota, Nebraska and other states.

The capacity of the plant was soon brought up to 1,000,000 brick per month and at the present time has been increased so that the annual production will aggregate 15,000,000 brick.

Plans are being perfected for additional kiln capacity at the plant, a steam shovel having been recently installed to facilitate the handling of the raw product.

Under the new arrangement, Mr. Buckley will be able to give close attention to the trade in Chicago and the northwest territory to be handled directly from the offices here and thru the W. G. Block Co., Davenport, which handles a large amount of the Tri-City Brick Co.'s products. Mr. Buckley will move to Minneapolis.

The officers of the company are F. K. Rhoads, president; C. J. Mueller, vice-president; C. A. Beers, treasurer; W. C. Grant, secretary and in addition to the officers who are directors, Fred T. Myers and H. O. Binyon, constitute the board. Mr. Grant will be added to the board in addition to succeeding Mr. Buckley as secretary.

INCREASES CAPITAL STOCK

The Best Brick Co. of Evansville, Ind., has increased its capital stock from \$50,000 to \$175,000, it is said.

CANNELTON EXHIBITS IN LOUISVILLE

The Cannelton (Ind.) Sewer Pipe Co. was the only exhibitor of brick or clay products at the annual meeting and exhibits of the Kentucky Hardware & Implement Dealers' Association, at the Jefferson County Armory, Louisville, January 23 to 25, there having been over 300 dealers in, out of a membership of 550 and 600 dealers in the state.

INDIANAPOLIS PASSES ZONING LAW

The Indianapolis, Ind., zoning ordinance recently passed by the city council has become effective. It will be used in regulating construction thruout the city. It now is necessary for each applicant for a building permit to file with the building inspector a complete duplicate of plans. He also must file plans showing the arrangement of the lot on each side of the structure he is to build and the lots adjoining, showing the type of construction on those lots.

DECLARES THREE PER CENT. DIVIDEND

Max Irmscher, of Fort Wayne, Ind., recently was elected president of the Fort Wayne Brick Co. at the annual meeting of the stockholders and directors. Other officers chosen were: John Suelzer, vice-president; Edward C. Miller, secretary and treasurer; Oscar M. Richter, manager for 1923. The financial report indicated the company had an excellent business during last year. A three per cent. dividend was declared, payable at once, on all outstanding capital stock of record December 31, 1922. During the past year the company manufactured 4,400,000 brick, of which the most were sold. The company manufactures light buff-colored common clay brick.

STANDARD MUST SELL PLANTS

The Standard Shale Brick Co., of Crawfordsville, Ind., was ordered sold recently by Judge Jere West in the Montgomery Circuit Court for \$400,000 or more. The order is the result of action on the part of the bondholders and creditors of the company asking that the receivership be ended and that the assets of the company be realized in their interests. The claim of the bondholders amounts to about \$200,000. Other claims amount to about the same figure. The assets of the corporation are the new plant, about four miles north of the city, and the brick plant of the Standard Brick Co., nearer the city, which has been in operation for several years. A receivership was called for several months ago, and David L. Brookie and the Crawfordsville Trust Co. were made joint receivers, representing all parties concerned.

KOKOMO TO PUT IN NEW EQUIPMENT

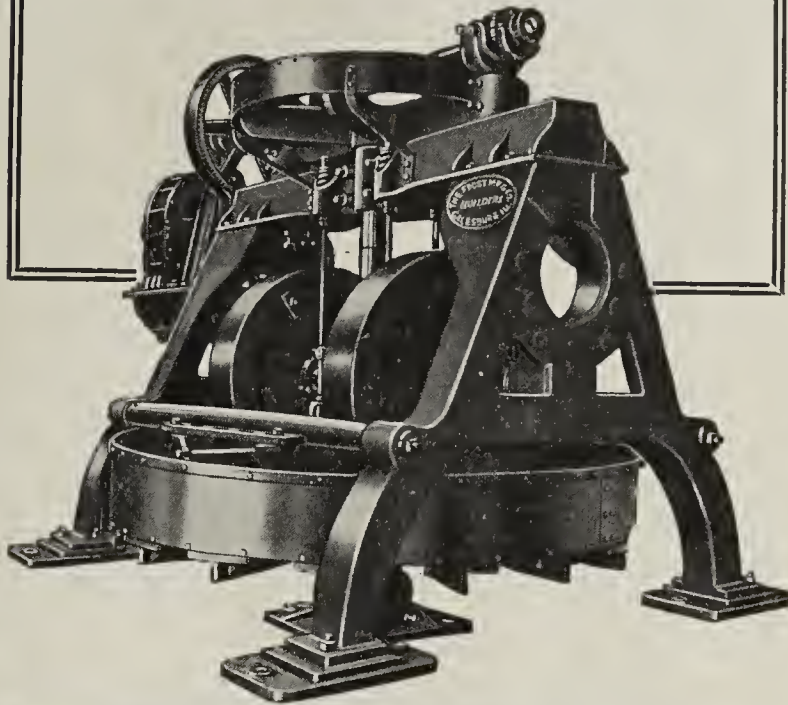
Directors of the Kokomo (Ind.) Brick Co., at a recent annual meeting in a Kokomo hotel voiced the opinion that 1923 will be a good business year, especially if there is no coal strike. In the reports of the business of the company for the last year it was shown that a very successful year had been enjoyed. With confidence in the new year, the directors decided on the purchase of a quantity of new equipment. A gasoline locomotive is to be purchased and several new appliances for brick machines.

During last year it was shown that 55 per cent. of the brick produced were used by buyers outside the immediate vicinity. The trade territory takes in all of northern Indiana and part of Eastern Ohio. O. M. Booher, assistant secretary and general manager stated the company had a fair volume of orders booked and a good supply of brick on hand. The old officers of the company were re-elected. They are J. E.

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

Organized
1885



Incorporated
1908

FIRE INSURANCE

In addition to effecting substantial reductions in Fire Insurance Rates, Squire Company's service includes Fire Prevention Engineering work—Adjustment of Losses—In fact, complete elimination of all worry in connection with insurance details.

Quotations upon request.

SQUIRE COMPANY

INSURANCE . . . BROKERS
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NEWARK, N. J.
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Insurance Specialists to Clay Manufacturers



TRADE MARK REGISTERED U.S. PAT. OFFICE
JUNE 21st, 1910

GENUINE BALATA BELTING

Made from specially woven, extra heavy, cotton duck and pure Balata gum.

Particularly Adapted To Clay Industry, For Either Driving or Conveying Because—

“VEELOS” BALATA

1. Has enormous tensile strength and is the strongest belt known to engineers.
2. Impervious to water or steam—resists the action of fumes and alkalis—is not affected by acid, grit, and the daily grind of the clay plant.
3. It is uniform in thickness and texture. WILL NOT STRETCH.

VEELOS BALATA is the key to the solution of your belt troubles.

Write for samples and complete information.

MANHEIM MFG. & BELTING CO.
MANHEIM, PA.

CHICAGO BRANCH — 565 W. Washington St.

“Saves us 30c a ton
on coal handling”



Brick plant uses Clark Tractors to replace dump wagons for coal hauling and reduces cost more than one-half.

CLARK TRACTOR CO.

Gasoline Industrial Vehicles

1124 Days Ave. Buchanan, Mich.

Frederick, president; D. W. Butz, vice-president; Willis Dye, treasurer; Elmer Danner, secretary, and O. M. Booher, assistant secretary and treasurer.

LOUISVILLE PLANTS OPERATING

Coral Ridge Clay Products Co. reports that demand is steady and heavy, and that the company has orders on hand equal to at least 90 days full time running. The big plant is running mornings on brick and afternoons on hollow tile, and running thru the winter without a stop. The Progress Brick Co., has resumed operation, while the Bannon Pipe Co., is running full time, and the Southern Brick & Tile Co. has resumed after a short shut down.

KENTUCKY COAL PRICES DROPPING

Coal prices in Kentucky have been working lower and should reach the bottom within the next 30 to 60 days. Mine run coal is now quoted at from \$2.25 for the cheapest grade produced in the state, to \$3.50 for the finest grade of gas mine run, but it is believed that these prices will work down to around \$1.50 to \$2.25 or \$2.50 before they start advancing again, unless the threatened car shortage steps in and changes the situation.

REDUCES CAPITAL 33 PER CENT

The Mercier-Bryan-Larkins Brick Co. has decreased its capital from \$60,000 to \$40,000, it is reported.

LANSING COMPANY DECLARES DIVIDEND

Brick & Supply Co., Lansing, Mich., which has been in operation about a year, declared the first dividend on common stock, payable January 25 to stockholders of record December 21, it is reported.

NEW MACHINERY FOR EDWARDS BRICK CO.

New machinery has been installed following reorganization of the Edwards Brick Co., Columbia, Mo., for the manufacture of stiff mud brick and tile. The local demand for these products, it is estimated, will keep the company busy.

TO MAKE NEW KIND OF BRICK

Springfield, Mo., will soon boast a new factory which will manufacture machinery for the manufacture of “Haydenite” brick, it is announced. B. F. Hayden is the inventor of these brick. His associate is C. D. Cope.

STOCK RISES 20 POINTS ON MARKET

Preferred stock of the Hydraulic-Press Brick Co., St. Louis, Mo., took an active part in the St. Louis Stock Exchange figures of the year's trade, it is said. This stock rose more than 20 points, which indicates the company's excellent standing.

WALSH BUYS 90,000 TONS CLAY

The Walsh Fire Clay Products Co., Elsberry, Mo., has contracted with Ed. McCullough to mine and ship 90,000 tons of fire clay to Elsberry. The scales for weighing the clay are being installed, and it is reported that the cars are being shipped rapidly.

REPARATION ORDERED ON FIRE BRICK

Examiner Fred N. Oliver, in a report on No. 13712, Barnsdall Refining Co. et al., vs. Atchison, Topeka & Santa Fe et al., said the commission should find unreasonable, rates on fire brick, from Cheltenham, Maryland Heights, Wellsville and Mexico, Mo., to Barnsdall, Okla. The shipments in question were made between April 10, 1920, and December 9, 1921, inclusive. Charges were assessed at the applicable rates of

18.5 cents before and 25 cents subsequent to August 26, 1920. A group commodity rate of 14 cents prior to and 19 cents subsequent to August 26, 1920, applied from the Missouri brick ovens to points in Oklahoma beyond Barnsdall. The subsequent establishment of a 19 cent rate to Barnsdall cured the fourth section departure. Oliver said the rates should be held unreasonable to the extent they exceeded 14 and 19 cents and that reparation should be to that basis, says the Traffic World.

NEBRASKA GOVERNOR WANTS STATE PLANT

Representative Ross Amspoker of Keya Paha County, Nebraska, advocates that the minds of prisoners be kept active and he fears that the transferring of the reformatory at Lincoln from a military school to a penal institution will leave nothing to do for these young men. He, therefore, is introducing a bill suggesting that \$100,000 be set apart for the installation and operation of a brick plant at the state reformatory.

INDEPENDENT OPERATES THRU WINTER

The Independent Brick Co., Trenton, N. J., reports a heavy demand for common brick and is now operating at three of its four plants, fully equipped for winter production. Manufacture is expected to be increased gradually as the spring season nears, with the accumulation of reasonable reserves for the anticipated call. At a meeting late in January Lewis A. Thompson, Somerville, N. J., former senator, was reelected president; Lewis Lawton, Trenton, has been elected vice-president; Charles T. Dunham, Trenton, has been reelected secretary, treasurer and general manager, and H. E. Hicks will act as general superintendent.

ENLARGING N. M. STATE PLANT

The penitentiary at Santa Fe, N. M., will eventually have to be moved from that city to a place where it can also include more territory, especially farm lands, it is claimed. The penitentiary board deemed it necessary to choose a site where prisoners could be employed in farming and brick manufacturing. The brick industry at the prison has been put on an efficiency basis within the last six months. A greater economy of fuel has been realized and the quality of the product has shown a higher test, it is reported. It is further believed that the plant can be made to produce other clay products in addition, such as floor tile, sewer pipe and drain tile.

NEW YORK DEALERS CAN'T GET BRICK

Connecticut brick cannot be brought into the New York market now because the New York, New Haven & Hartford Railroad tells manufacturers that it has not been able to supply cars. One New York dealer in December bought 90 carloads of brick from a point up in New York state and, because of the manufacturer's inability to obtain freight cars in sufficient quantities, only four carloads have been received by him on that order, which was placed to provide him with reserve brick stocks for winter customers.

METROPOLITAN LOANS 5¼ MILLIONS

Loans on bond and mortgage amounting to about \$5,250,000 were authorized by the Metropolitan Life Insurance Co., recently. Of these nearly \$2,000,000 were loaned for housing, these loans providing for 347 dwellings to house 379 families and eight apartment houses to accommodate 74 families. The principal places in which housing loans were made were in New York City, Detroit, Atlanta, Raleigh and Winston-Salem, N. C., and Chicago, with small loans in Virginia, West Virginia, North and South Carolina, Georgia, Alabama, Tennessee, Michigan, Illinois, Oklahoma, Utah and Califor-

Quality—

That's what face brick manufacturers are striving for. By the use of

National Manganese

Better colors can be produced in brick.

Light burning and buff brick can be made into beautiful French gray shades.

Remarkable and unusual speckled effects can be produced.

Red burning clay can be made to produce the very popular brown shades.

Better colors can be produced in pottery, and hollow tile which burn to unsightly colors.

National Manganese

Has Been the Standard for Twenty Years

Write for sample and prices.

**NATIONAL PAINT AND
MANGANESE COMPANY**

LYNCHBURG, VA.

Miners and Grinders for More than a Quarter Century.

STEVENSON

DRY PANS

WET PANS

ROLL CRUSHERS

SEWER PIPE PRESSES

SEWER PIPE TURNERS

TILE PRESSES

PRESS FEEDERS

CRUSHER FEEDERS

PAN FEEDERS

BUCKET ELEVATORS

GRAVITY ELEVATORS

BRICK BARROWS

TILE BARROWS

SEWER-PIPE BARROWS

GIGS

ETC.

THE
STEVENSON CO.

Welleville Ohio

*Western Sales & Engr.
Office*

801-802 Monadnock Bldg.

Chicago, Ill.

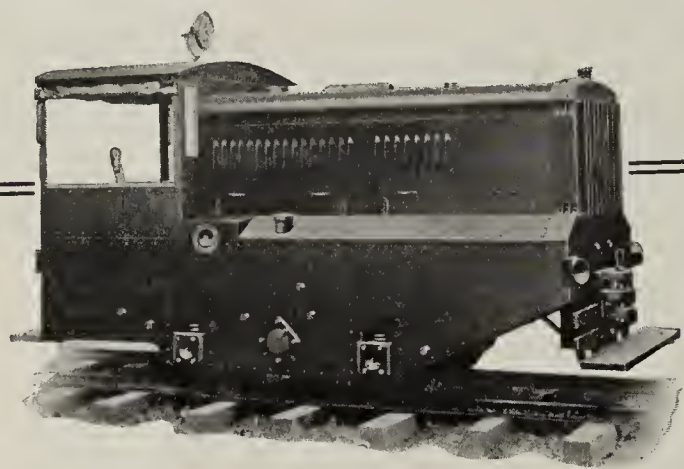
*Bulletins
on
Request*

PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO



MINSTER LOCOMOTIVES

are particularly adaptable to clay pit work. Not only does a Minster offer you cheaper haulage, but affects a big saving in time and labor.

*Ask about the Minster
2 to 8 ton capacities*

THE INDUSTRIAL EQUIPMENT CO.
510-510 OHIO STREET MINSTER, OHIO

Eastern and Export Department
The Herbert Crapster Co., Inc.
1 Madison Ave., New York City

nia. Nearly \$1,500,000 were loaned on business buildings, of which one million was loaned in New York City; one-quarter million in Atlanta and the balance mostly in North Carolina.

Farm loans amounted to nearly \$2,700,000, and were 274 in number, chiefly in Iowa, Illinois, Nebraska, South Dakota, Missouri and Kentucky.

The rate of interest was the rate prevailing in the locality.

KENTON B. & T. CO. ELECTS

At the annual election of officers, held recently, John C. Jordan was elected president and manager of the Kenton (Ohio) Brick & Tile Co. The stockholders met at the same time and the directors elected were as follows: J. C. Jordan, Ed. Schindewolf, C. M. Cessna, E. J. Stickle and G. W. Schindewolf.

ACQUIRES VALUABLE CLAY LAND

The Alliance (Ohio) Brick Co. has recently become the owner of the Joe and Agnes Incze farm. This is a farm of about 61 acres, which consists of valuable shale and fire clay deposits, and is situated one mile south of State street, between the Homeworth road and the C. & P. railroad, at Alliance.

IRONCLAY COMPLETING DISPLAY

The Ironclay Brick Co., of Columbus, Ohio, which operates a face brick plant at Shawnee in addition to several common brick plants and a retail supply business has just about completed the large brick exhibit at its offices in the Ruggery Bldg. The exhibits surround a large room and are most artistically arranged.

COLUMBUS CONCERN TO OPEN MARCH 15

W. T. Matthews, formerly sales manager of the Claycraft Brick Co., of Columbus, Ohio, who has contracted for the purchase of the outstanding stock of the Columbus Brick & Terra Cotta Co., at Union Furnace, Ohio, is busy selling stock for the purpose of taking over the concern. The date set for taking over the property is March 15. No new company will be organized, the plan being to elect different officers. Steps will be taken at once to put the face brick plant at that place in shape for operation. It has been idle for the past six years.

BRICK MANUFACTURERS AFTER B. S. DEALERS

Mr. Puddington, the energetic sales manager of the Wadsworth (Ohio) Brick & Tile Co., took the opportunity of the Ohio Building Supply Dealers' convention to exhibit their full line of face brick.

Mr. Puddington is 100 per cent. for the Building Supply Dealer and it is to be hoped that before long all of the face brick manufacturers will follow the example of this company.

The Medal Paving Brick Co. was another concern that had face brick samples on display at this convention and reported many orders at the conclusion of the event.

SCHNEIDER PLANT ORDERED SOLD

Clay properties valued at approximately \$156,000, owned by the H. C. Schneider Sewer Pipe Co., Canton, Ohio, were ordered sold within the next 20 days, it is said, at either private or public sale by Judge W. V. Wright in common pleas court Friday following a conference of attorneys connected with the receivership proceedings who had gathered in the court room prepared to hear a motion filed recently by the stockholders of the defendant company to have the receiver, R. A. Youngen, dismissed because he was not a clay operator.

Youngen was given ten days by the court to dispose of the property at private sale and if he fails was given ten



SALEM

Elevator Buckets

The original—Awarded First Premium in 1880—which has many imitations—further endorsed by the many imitations now on the market.

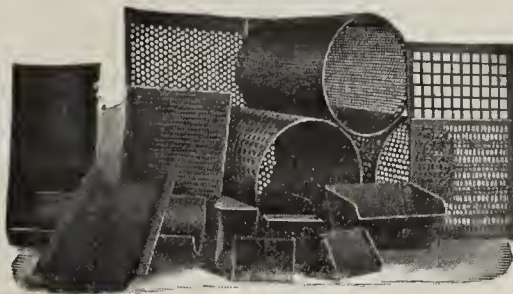
Standard for 40 Years
Made in all types and sizes for every requirement in Regular, Medium, or Extra Heavy Gauges—stock sizes, or Special Sizes made to order.

Send for catalog and price list, or submit specifications for price quotations.

Mullins Body Corp'n
Successors to W. J. Clark Co.
101 Mill St. Salem, Ohio

HENDRICK SCREENS

FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

*Ask for your copy of the
Perforated Metal Handbook*

HENDRICK MFG. COMPANY
CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Arcade Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

Always Good~

Now

Better

than

Ever

Another **FEDERAL**
"Means Another Satisfied User"

DIESEL ENGINES

FOR CLAY PLANTS

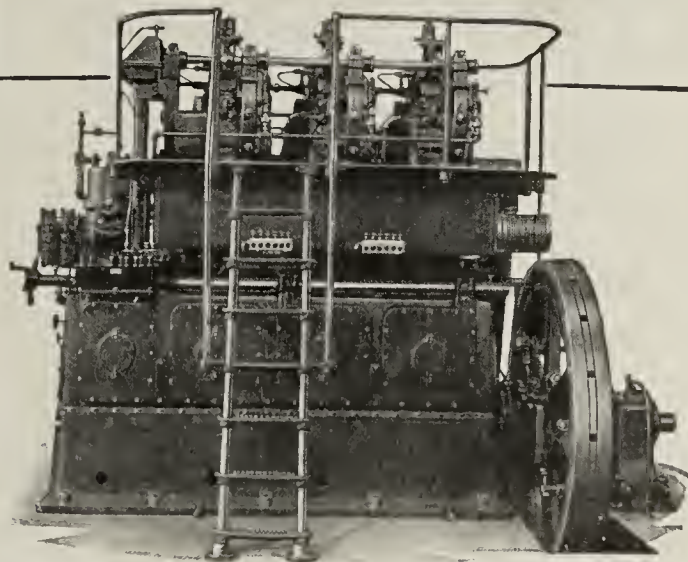
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.



Clay of High Value

in territory just 40 miles from
Pittsburgh

This is an ideal location to build that new plant. It is along the P. L. & W. R. which connects with both the Pennsylvania and Erie Systems.

Read the analysis:

Coal—No. 6	Clay—No. 3
Water.....2.200	Silica.....59.84
Volatile Matter.....35.540	Alumina.....25.96
Fixed Carbon.....54.705	Iron Oxide.....1.68
Sulphur.....1.725	Titanium Oxide.....1.60
Ash.....5.830	Magnesium Oxide.....1.08
	Sulphuric Anhy- dride.....Trace
	Alkali Oxides.....1.22
	Fusion Point.....3020° F.

Be sure and get full particulars in regard to the rich land if you contemplate building a new plant.

Write today

The Pittsburgh, Lisbon & Western R. R. Co.
Lisbon, - - - - - Ohio

In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

BURKE ELECTRIC CO.

MAIN OFFICE AND WORKS
ERIE PENNSYLVANIA

Service-Sales Offices

NEW YORK CLEVELAND PHILADELPHIA
PITTSBURGH DETROIT BUFFALO

Sales Agencies

CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

additional days to dispose of the holdings at public sale. The order was made after the stockholders instructed their attorneys to withhold the motion to have Youngen dismissed.

FINDS FIRE CLAY VEIN NEAR PLANT

Officers of the Continental Clay Co., with offices in Columbus and Canton, Ohio, announce that a stratum of fire clay of from 12 to 20 feet has been discovered near its two manufacturing plants at East Greenville, west of Massillon. It is said the survey was made by Ellis Lovejoy, a ceramic expert, and that the fire clay should make a fine grade of fireproofing, partition tile, flue lining and sewer pipe products.

The company officials say that developments of this stratum will cost approximately \$20,000 and that the development can be made without operation of the East Greenville plants which are reported to have a capacity of 35,000 building tile daily. Officials say that work of development will be started shortly.

STATE PLANT GETTING MUCH BUSINESS

New building projects at state educational institutions planned for the coming year are on a scale sufficiently large to require practically all of the brick made at the state brick plant, Junction City, Ohio.

This announcement was made by J. E. Clarke who has charge of all manufacturing activities for the Ohio department of welfare. Orders so far received from these institutions total almost 5,000,000 building brick, the largest of the orders coming from the Ohio State University, Ohio university at Athens and Miami university at Oxford.

Because of the increased demand for these brick, very few paving blocks will be turned out at the Junction City plant this year. For several weeks the 155 prisoners employed there have been installing new kilns and the capacity generally has been increased at the plant, so that work may be resumed as soon as weather conditions will permit.

METROPOLITAN OPERATING ALL PLANTS

Prediction is made by officials of the Metropolitan Paving Brick Co., Canton, Ohio, that the coming spring will be one of the most active in road construction and building in general in recent years.

Plants of the Metropolitan company, seven in all, are at the present time operating 100 per cent., it was announced from the general offices of the company this week. The company's plants in the Youngstown district also are operating in full.

The price of paving block still continues around \$28 to \$30, with little prospect of further increases before spring, it was said this week by officials of this company.

Shipments are going forward with much regularity and the rail situation had adjusted itself to a point where officials of brick manufacturing plants in this vicinity can again promise deliveries, a condition which has not existed since the pre-war days.

The paving block industry looms active for the entire year, and not in many years has so much road work been in prospect in the Canton district, to say nothing of that in preparation for resumption for early spring.

ANNOUNCE BIG REFRACTORIES MERGER

C. B. Young, of Columbus, president and manager of the Central Refractories Co., which operates two plants in Ohio and also two plants in Pennsylvania, announces the completion of the merger of the Eastern Refractories Co. of Pennsylvania, with the Central Refractories Co. of Ohio. The former concern, being a Pennsylvania corporation, was changed into the Central Refractories Co., and the Ohio plants will be attached to that company. The headquarters are in Columbus with a sales office at Bellefonte, Pa., the



Quick response in the emergency



Whether in every day use or in the emergency, Jenkins Hose Valves quickly respond to the turning of the wheel, with a full flow. Non-corrosive materials obviate rust-clogging and jamming; and the renewable disc, especially adapted to cold-water service, fits tight over the seat without sticking. Made for 250 pounds working water pressure.

Look for the Jenkins "Diamond" and Signature on the genuine—
—at supply houses everywhere.

JENKINS BROS.

Fig. 112—Brass Hose Angle Valve, threaded on outlet for hose connection.

New York Montreal Philadelphia
Chicago Boston London
FACTORIES: Bridgeport, Conn.;
Elizabeth, N. J.; Montreal, Canada

Jenkins Valves

SINCE 1864



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

Did You Notice the Error?

When you read pages 130 and 131 of the January 23 issue—the center spread advertisement of International Clay Machinery Co.—did you notice the error in the third line of the second paragraph? We suggest that you turn to that ad again and read it as it should be:

"Clay products manufacturers should give the labor supply matter serious and extensive thought. Jobs will be plentiful, and men will choose such occupations as will require the least amount of manual labor and the highest pay.

"This means you are going to pay a higher rate for your labor and to compensate for a higher payroll, you will be obliged to use equipment that will produce maximum quality and quantity of ware (not 'wear') per man with the smallest amount of breakage and waste, and with least cost for power and repairs. There is where our new line of clayworking equipment will help you.

"Our engineering staff has had years of experience in overcoming every problem confronting you as a manufacturer. Study your problems; make a note of each one and submit them to us direct or to our engineers at the Cleveland Convention (Rooms 210 and 212).

International Clay Machinery Co.

Dayton : : Ohio

The English language is continually making trouble for some one, because English as it is written does not always correspond with English as it is spoken. "Wear" sounds just like "ware" but there is a wide difference in the meaning, and yet we venture to say that everyone reading that attractive advertisement read into that word the meaning intended.

Some of you probably smiled in sympathy, having had experience with similar happenings in your own publicity work.

Remember that International Clay Machinery Co. have "equipment that will produce maximum quality and quantity of ware per man, with the smallest amount of breakage and waste, and with least cost for power and repairs."

The Digger for the average sized plants

The machine that digs, loads and mixes enough clay, for a capacity of 25,000 to 100,000 per day at an average cost of \$8.00 per 10 hours. An excellent machine for stripping. Saves enough over hand labor to more than pay for itself in a short time, besides improving your ware thru a better mix. Caterpillar or track mounting, gasoline or electric power.

In many instances it has displaced 12 men and is costing less for operation than the wages of three of them. The price with caterpillars is less than \$3,000

*Even the very small plants can afford and ought to have the BAY CITY.
You will need a digger this year.*



"A great machine for mixing clay"—

This is what Mr. Voelker, of Winona Brick Yards, Winona, Minn., has to say about their

ONE-MAN EXCAVATOR

He further states: "We have used the One-Man Excavator we purchased from you last spring, and find it to be the only machine to handle clay economically. It is a great machine for mixing the clay because you get a clean cut from the bottom to the top of the bank. If you have anybody that wants to know anything about the machine direct him to us."

You, too, can get the same results with this labor- and cost-saving equipment. Now is the time to order your machine for spring delivery.

The whole story is told in our Catalog E, which is yours for the asking
Meet us in Cleveland, February 5-10



THE BAY CITY DREDGE WORKS
Bay City, Mich.

location of the general offices of the Eastern Refractories Co. Officers are C. B. Young, Columbus, president; I. L. Harvey, Bellefonte, secretary; O. J. Harms, Snoeshoe, Pa., vice-president, and W. W. Connell, Newark, treasurer.

The Ohio plants are located at Shawnee and New Lexington. The Shawnee plant makes both face and fire brick, the former being iron spotted. The New Lexington plant manufactures stiff mud face brick, buffs and browns principally. The plant at Orviston, Pa., where the clay deposits are located, manufactures machine and hand made stiff mud face brick as well as fire brick, while the plant at Snoeshoe, located 20 miles from Orviston, makes fire brick only. It is a strictly hand plant and has a capacity of 20,000 daily, while the plant at Orviston has a capacity of 70,000 daily. All of the plants are in operation.

✻ ✻ ✻

The Central Refractories Co. has just completed the installation of new equipment in the dryer department at the New Lexington, Ohio, plant which will be put into operation about February 5. The fan system is used and it is expected to increase the capacity of the dryer department by from 50 to 75 per cent. The improvements are quite extensive. The same company will soon start the installation of a hot floor at the Orviston, Pa., plant which is used for the manufacture of hand made fire brick. This work will be hurried in order to increase the output of that unit.

GETS ORDER FROM ARGENTINE

Corry (Pa.) Brick & Tile Co. filled and shipped an order of 12 cars of chemical brick and shapes to Buenos Aires, Argentina. This material will be used in the erection of an acid plant in this city, contractors being the New York Steel Exchange, Inc. This company has the distinction of making two previous foreign shipments, both to Roumania, during 1922.

NEW HOPE COMPANY SOON TO OPERATE

The American Clay Products Co., New Hope, Pa., which has been building a local plant for the production of high grade brick since the spring of 1920, is making ready for production at the initial plant units, and expects to commence active work during March. The plant has been provided with complete modern labor-saving equipment, and a comparatively small working force will be engaged for the heavy manufacture now anticipated. The company has extensive shale deposits in the vicinity of the works of practically unlimited supply and which ultimately will be drawn upon for a capacity of 300,000 brick per day and upwards. The new plant is said to represent an investment in excess of \$1,000,000.

RYTT LOOKING FOR NEW MAN

J. P. Maurer, part owner of the Sumpter (S. C.) Brick Works, has been ill since June, 1922, and doctors have given up all hope for his recovery. The sympathies of his friends are with Mr. Maurer and they hope for his recovery.

Mr. Maurer's illness has made it necessary for his partner, I. A. Ryttenberg, to obtain a man on the plant who can fill Mr. Maurer's place. If any brick man is interested to help Mr. Ryttenberg manufacture his famous "Airedales" he will be glad to consider an application.

MAY BUILD PLANT IN GREENVILLE, TENN.

It has been rumored that stock in a \$150,000 corporation at Greenville, Tenn., is soon to be sold. The company will build a brick plant of 50,000 daily capacity, utilizing a shale of good quality which is found just outside of Greenville, it is said.

ATLAS

EXPLOSIVES

for quarrying



AS it will not freeze under any condition, Atlas AMMITE eliminates the cost and the inconvenience of thawing experienced when ordinary forms of dynamite are used in cold weather. Not only that, but its use means a SAVING in blasting costs and freedom from headaches when handling. Let the Atlas Service Man help you to determine what grade will effect the GREATEST economy on your work. Write nearest Branch.

AMMITE

— cannot freeze —

ATLAS POWDER COMPANY
WILMINGTON, DEL.

Branch Offices:

Allentown, Pa.; Birmingham, Ala.; Boston, Mass.; Charleston, W. Va.; Chicago, Ill.; Des Moines, Iowa; Houghton, Mich.; Joplin, Mo.; Kansas City, Mo.; Knoxville, Tenn.;



Branch Offices:

McAlester, Okla.; New Orleans, La.; New York City, N. Y.; Norristown, Pa.; Philadelphia, Pa.; Pittsburg, Kans.; Pittsburg, Pa.; Pottsville, Pa.; St. Louis, Mo.; Wilkes-Barre, Pa.

SCHAFFER POIDOMETER

"Very best investment we have made," says Howard Frost, President of Los Angeles Press Brick Co., in regard to their

SCHAFFER POIDOMETER

Read his letter—

"Our first poidometer is working fine, and we consider it one of the very best investments that we have made. We need a liquidometer for it, owing to the fact that the clay used is of variable moisture content. Our second poidometer is not as yet installed, but will be early next year, and the second liquidometer will be used with it."

The Schaffer POIDOMETER does all the work of the pug mill man—measuring, weighing and regulating the flow of the clay column with an accuracy of 99.75%, and at a rate of 1½ to 21,000 lbs. per minute. No loss or waste.

The advantages of the Schaffer deserve your investigation.

Write for catalog and information.

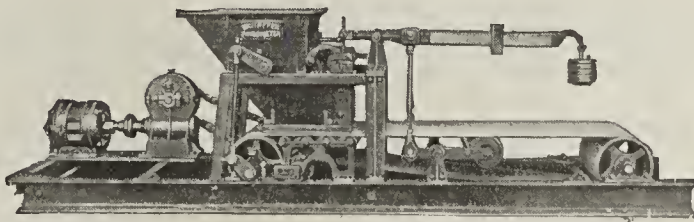


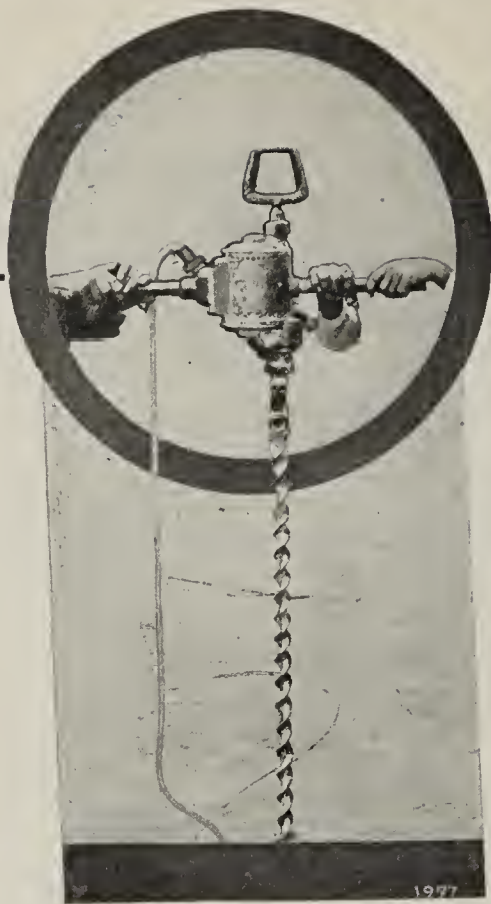
Schaffer Engineering and
Equipment Co.

2828 Smallman St., Pittsburgh, Pa.

*It's a success in a
hundred other clay
plants.*

Why not yours?





Drill Shot Holes this Way!

FOURTEEN times faster than hand-auger drilling, is the record of the Little Giant Electric Coal Drill illustrated.

This record was made while drilling vertical and horizontal shot holes through plastic, semi-plastic and flint clay in one of the pits of the A. P. Green Fire Brick Company, Mexico, Mo.

In addition to shot-hole boring, Little Giants speed up repair work.

Put your shot-hole drilling and repair jobs on a production basis. Use Little Giants. Available for operation on D. C., or single, two or three-phase A. C.

Address nearest Branch for trial drill.

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
*Sales and *Service Branches all over the World*

*Birmingham	*Detroit	Houston	*New York	*San Francisco
*Boston	Denver	*Los Angeles	*Philadelphia	*Seattle
*Chicago	El Paso	Milwaukee	*Pittsburgh	*St. Louis
*Cincinnati	Erie	*Minneapolis	Richmond	Tulsa
*Cleveland	Franklin	*New Orleans	Salt Lake City	

R-22

BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS • VACUUM PUMPS • PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES • ROCK DRILLS • COAL DRILLS

LITTLE
Coal



GIANT
Drills

PROVO PLANT DOUBLING CAPACITY

Arrangements are being made by the Provo (Utah) Brick & Tile Co., to double the capacity of its plant, it is said. This is being done so that the company will be in a position to handle the demand which will come when the new steel plant is constructed at Provo. Business has been very good and the company is shipping its brick all over the state. Provo brick are in great demand in the state.

FORM EAST FORK COAL AND CLAY COMPANY AT SEATTLE

The East Fork Coal & Clay Co., of Seattle, Washington, has been incorporated with a capital stock of \$150,000, it is said. As incorporators are mentioned: Charles Simenstad, Cassius E. Gates and John F. Keenan.

OAKFIELD PLANT MAKES SHALE TILE

In Oakfield, Wis., nine miles southwest of Fond du Lac, is the only kiln in the state making drain and building tile from shale, it is said. The capacity of the plant is 7,000 four-inch tile a day. The company makes drain tile from four to eight inches in size, and 5x8x12 hollow building tile. The work at the Oakfield plant is in charge of George Tesch.

FIRE DESTROYS KILN ROOF

An overheated fire box in a temporary kiln at the O. Zimbal Brick Co. at Sheboygan, Wis., was the cause of a fire that totally destroyed the roof over the kiln. The loss was about \$400. The Zimbal brick plant has been taxed by an unusual demand for its product, and a temporary kiln had been erected for the purpose of increasing production of the plant.

TRANSFERS CLAY PLANT PROPERTY

Transferring of property of the Leach Clay Products Co. in Manitowoc, Wis., to the Oshkosh Manufacturing Co. has been made a matter of record. The Leach company owns land upriver on which its brick plant is located. The company has not operated for the past few months and nothing could be learned as to what the deal implies. It is said at Oshkosh that the Leach company and the Oshkosh Manufacturing company have been closely identified but no statement could be secured as to whether it was planned to continue operation or to dismantle the plant.

FREEBORN AGAIN MADE ALDERMAN

Ald. W. H. Freeborn, Brantford, Ont., has been reelected for the seventh consecutive year.

TO VISIT SOUTH AMERICA

Andrew Dods, president of the Ontario Sewer Pipe Co., Mimico, Ont., and Mrs. Dods sail for the Panama and South America on February 17.

NAME SCHOOL AFTER BURGESS

William Burgess, plant manager of the Don Valley Brick Works, Ltd., Toronto, Ont., has been reelected school trustee of Todmorden, Ont., by acclamation. The large new school erected in Todmorden last year has been named the "William Burgess" school.

C. B. LEWIS CALLED TO ENGLAND

Chas. B. Lewis, formerly manager of the Toronto Pressed Brick Co., Milton, Ont., is in England, where he was called on account of the death of his father, former owner of the brick plant. The plant, which was adjacent to that of the Milton Pressed Brick Co., was purchased by this company and has been amalgamated with the Milton company, according to a report.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Devoted to Progress in the Clay Industry

(The opinion of our readers, expressing the purpose and spirit of this publication)

For the Advancement of Production Technique

ANY MAN engaged or directly interested in the engineering and operating problems of a clay plant who has not already attended a meeting of the Heavy Clay Products Division of the American Ceramic Society, should immediately resolve to do this at his very next opportunity. Those who in the past two years have attended sessions of this youthful organization will of their own volition never miss a meeting if they can help it.

The heavy clay products division of the American Ceramic Society is a branch of that organization and has its own offices, arranges its own program and meets separately from the other divisions of the society, altho at the same time and place. Its meetings are going on simultaneously with the sessions of other divisions such as the terra cotta, refractories, and so forth.

Contrary to the opinion that many persons hold, the papers and discussions of the Heavy Clay Products Division are not all "high brow." A man who has had a fair experience in the manufacture of brick or tile and who has given the matter of manufacturing operations at least the amount of study it deserves, will find it not difficult to follow the discussions of the sessions.

This organization provides a forum on manufacturing problems—a place where engineering subjects can be discussed intelligently—a source for inspiration toward better efforts in clay ware production. An opportunity exists here for a simplification of manufacturing methods and a better understanding of the proper trend in producing systems that mean lower operating costs.

The progressive and broad visioned manufacturer will see in the heavy clay products division an opportunity for his production manager or technical man to improve his knowledge and thereby improve his value to his organization. Men who are interested in elevating the standards of the industry and thereby helping themselves, will join this section.

Continue to Encourage Winter Construction

IF THE PRODUCTION of clay ware could be maintained at an even pace thruout the entire year many advantages would accrue to the industry. The effect that steady and consistent production has on plant efficiency and operating costs, is well-known and need not be discussed here.

There are several ways to get business that will enable steady plant operation. However, in this instance we wish to refer particularly to winter construction.

Because builders have thought that construction is a seasonal occupation, those industries dependent upon building have had to be seasonal. There have been some men in the construction industry, however, who had vision

In the March 6 issue of Brick and Clay Record Col. Leonard P. Ayres, vice-president of the Cleveland Trust Co., will picture and forecast the business outlook for 1923. Mr. Ayres is an acknowledged and authoritative business "prophet."

This article to be printed will be taken from the talk Mr. Ayres made at the Cleveland convention of the Common Brick Manufacturers' Association.

and who preached the advocacy of winter construction. Their efforts never got far because their followers were few and people were skeptical.

That these men had a vision that is practical is proved by statistics for this winter. Never before in American construction history has building been so universal and continuous.

Even where snow and severe weather have made conditions impossible for outside activities, a demand for construction seems to have compelled dealers, manufacturers, and builders to cooperate in doing all in their power concertedly to keep up every fraction of outside construction that might be carried on under improvised shelter.

Only five cities out of 75 in 31 states of the union that answered a questionnaire sent out by Building Supply News recently, reported winter building at a standstill. In Chicago, construction has kept up its pace at mid-summer stride.

This winter has proven that construction need not be seasonal. Efforts should be made to encourage winter construction in 1923-24 and every other winter thereafter.

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Judicious Purchasing Saves Money

CONGESTION of the steel situation is becoming more pronounced and price increases are common occurrences. Producers are rapidly being loaded up with tonnage and in some instances are not able to handle new business.

The scarcity of common labor in the steel industry is already limiting the capacity so there is little hope for much improvement and increased tonnage production.

Some of the price increases have already been reflected in the increased cost of machinery and equipment purchased by clay plants. But with steel prices still unsteady and rising, the prospect of higher priced machinery and repair parts is quite certain.

Much money can be lost on an inefficiently conducted supply or stock room on a clay plant. On both the points of time of purchase and the amount of parts on hand a saving can be made. Lack of having a certain repair part in stock will often cause a delay or idleness that would have paid several times the price of that part. A sufficient quantity of repair parts of all kinds should be maintained at all times on the clay plant. Moreover, these parts should be purchased at a time when market conditions are best.

Altho the low point in the cost of steel products was past a long time ago, there is still opportunity to purchase at prices lower than it is predicted they will be several months from now and at a time when delivery is better and more certain than can be expected later on in the year.

Brick Must Get More Publicity

Common Brick Manufacturers' Association Brings Out Necessity for Greater Brick Propaganda—Forming of Local Associations Urged

WITH THE SPIRIT of youth, enthusiasm and ambition, the Common Brick Manufacturers' Association gathered in annual convention at Cleveland, February 5, 6 and 7, 1923. Tho brick manufacturing is ages old, the business of actively and collectively promoting their sale is comparatively new, and manufacturers who attended the convention seemed to realize this and were eager to get information and ideas. Over 150 manufacturers from every part of this country and some from Canada came to attend the Cleveland convention.

Manufacturers of clay machinery and equipment also turned out about 100 strong, and practically every important manufacturer of equipment for the clay industry was represented. Two entire floors of the Hotel Winton were devoted to displays and headquarters of machinery manufacturers and others.

The program contained a variety of interesting and instructive talks and papers, but the dominant note thruout the meet-

matic process. Two Auto-Brik machines daily turn out approximately 54,000 brick each at this plant.

Many of the delegates brought their wives with them, and entertainment was provided for them by the local committee. Altho the C. B. M. A. is strictly a business organization, the social side was not entirely neglected, and Tuesday night the association went practically in a body to Keith's Palace Theatre, which is probably the most beautiful theatre in the world. A dinner-dance on Wednesday night, which was a joint affair with the National Brick Manufacturers' Association, concluded the convention.

The first session on Monday, February 5, was attended by 200, and included men from as far east as Boston and as far west as Los Angeles. The address of the president, Charles H. Bryan, who said that he felt the greatest necessity for the manufacturer of brick today is to know his costs, and talks by Charles A. Bowen, the assistant to the president; Ralph P. Stoddard, the very efficient secretary-manager of the association; Ernest S. Barkwill, treasurer; William Carver, association architect; D. Knickerbacker Boyd, consulting architect of the association, and Harry W. Conway, the consulting accounting expert, were on the program. These are the men that are at the helm of the several departmental activities of the association. While the impression created by each was that of competent ability to fulfill his duties successfully and capably, the outstanding impression was that all are working together with only one object in view, namely: the progress and good of the association.

Business Everywhere Is "Great"

There were two outstanding thoughts in the talk of secretary-manager Stoddard. He said that he had met many of the members and had asked almost everyone, "how's business?" The almost universal answer was "great." He also stated that the association had always steered clear of doing anything illegal, agreeing with the ideas of Secretary of Commerce Hoover to the effect that he had no use or sympathy with a trade organization whose activities approached the twilight zone of legality.

Mr. Carver spoke of the new code as recommended for dwelling house construction and stated that an eight-inch Ideal wall loaded two inches off center was found to be 24 per cent. stronger than a solid eight-inch wall.

Mr. Boyd showed that he is able to act as point of contact between the association and a great many committees and bureaus and associations, all of which helps common brick.

Gives Pointers on Advertising

Edward S. Jordan, president of the Jordan Motor Car Co., made a remarkable talk at the second session. He used a blackboard to bring home some of his arguments that all sales and advertising should be planned to appeal to the five senses, and said that brick homes must appeal to these senses just as much as automobiles. He said in selling a brick home, we must remember that the father of the family thinks in terms of economy in the long run, the mother of the children's opportunity, the daughter in terms of the social prestige and a happy marriage, and the son in terms of travel and go. He advised that all advertising must have a definite policy, to which all copy must adhere. The chief thing for



CHARLES A. BOWEN

ings was "how can we promote our clay products better and increase our sales." Next to advertising, the important subject was the dire need for the industry to form into local associations or groups which can take advantage to the fullest extent of the work done by the national association. All the sessions were well attended and in general a considerable amount of interest was shown in the program.

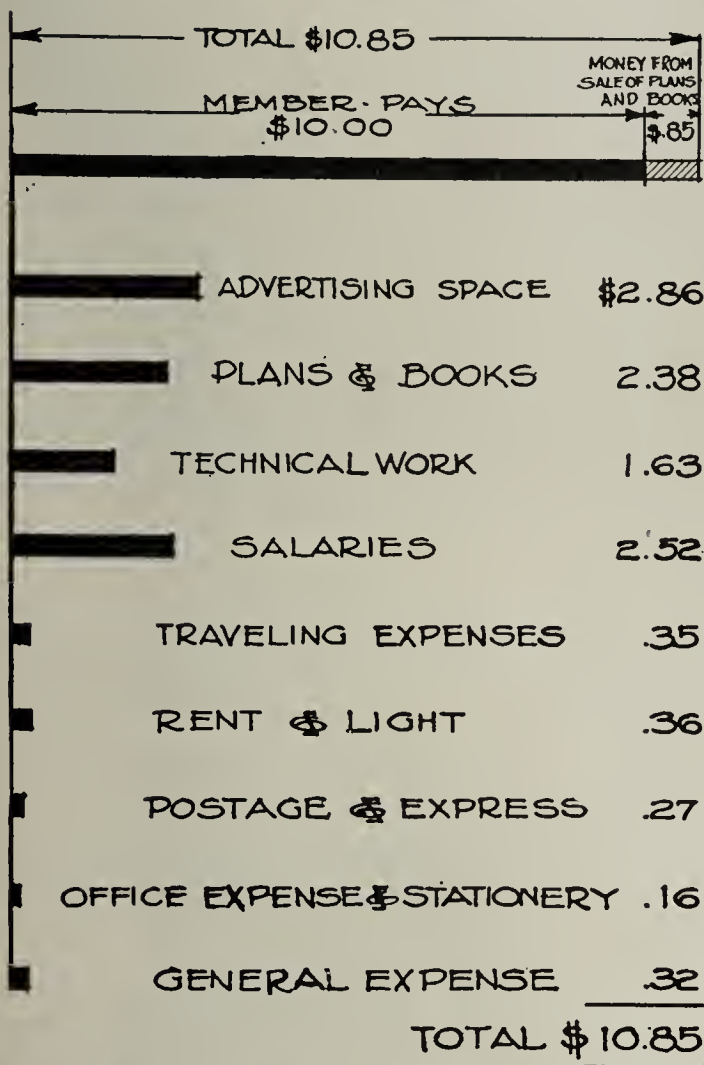
Visit Cleveland Plants

The Cleveland Builders' Supply & Brick Co., the Lancaster Iron Works and others arranged daily trips to the Cleveland plants for those who desired to inspect them. One plant especially, that of the Superior Brick Co., was interesting, as it was equipped to manufacture soft mud brick by the auto-

a brick man to do is to tell how good brick is, not to take time or trouble to tell how poor concrete is.

Ernest C. Roberts made some interesting remarks about

HOW EACH \$10.00 OF DUES IS SPENT



What Happens to Your Dues When You Pay Them to the Common Brick Manufacturers' Association.

the local advertising campaign being carried on by the Cleveland Builders' Supply & Brick Co. The results are shown by the fact that in 1919, 91 brick houses were built and in 1922, 209. He also called special attention to the fact that many of the things we wear, eat or see are advertised.

"What Does a Brick Cost?"

Jordan A. Pugh made a few remarks on what the book-keeper says, and this was followed by a cost accounting school for part of the membership led by Harry W. Conway. Pamphlets entitled "What Does a Brick Cost?" were also distributed to the members. This pamphlet is the result of a compilation by Mr. Pugh of suggestions made to him by various members at different times.

At the Tuesday morning session, vice-president John P. Cahoon, of the Salt Lake Pressed Brick Co., Salt Lake City, Utah, presided. Mr. Cahoon introduced Robert C. Griswold, of the Griswold-Eshleman Co., Cleveland, who spoke on "Twin Sisters—Advertising and Selling."

Mr. Griswold emphasized the importance of getting the salesman to realize that he must tell a business story when he goes out to sell, and his methods must be just a little different from the ordinary, if he would get his story across. There are four factors in business, Mr. Griswold said. They are money, executive ability, production and distribution. Among these four factors there must be complete harmony, if the business is to be conducted successfully. The first thing which a salesman must do before he can sell his goods is to engage

the favorable attention of his customer. This same thing holds true to advertising.

Six Steps in Advertising and Selling

There are six steps thru which an advertisement or a selling talk must take the prospective customer. First, his favorable attention must be obtained, then, interest is aroused; third, a desire to possess is awakened, impelling the prospect to the fourth step, which is action. The fifth and sixth steps are confidence and satisfaction, which are of equal importance with the others. Advertising cannot do everything, Mr. Griswold said, and the sales department must be prepared to pick up the thread where the advertisements left off. This means a well-planned campaign of advertising and selling.

Mr. Griswold said that the great element in business is SERVICE, and that the whole institution is no larger than its ability to give service. The importance of this point can hardly be overestimated and extends thruout the entire personnel of the business. Even the most insignificant employee can by a careless act do much damage to the good will of the company.

Following Mr. Griswold's talk, Charles A. Bowen directed a stirring appeal to the members for constructive cooperation. The main topic of his talk was a plea to establish local organizations which can supplement the work of the national for the benefit of both individual manufacturers and the national association. This is the day and age of cooperation, Mr. Bowen said, and business men are banding together for their common good, because they realize they cannot go along independently. One of the strong reasons why the brick manufacturers should form local associations is that they might get together and know each other better. They can then exchange information more fully and freely. A local association can also do much to improve building conditions and building codes in the local communities.

Must Work Harder to Get Business

Mr. Bowen said that brick manufacturers in 1923 should make a better effort and work harder to get business. The business is there to be gotten, but hard work will be necessary. Brick manufacturers have troubles enough, he said, without fighting each other. They should get together and do away with the price wars which exist in certain cities. In these sections brick manufacturers have little or no standing in the community, and as a consequence, are losing much business and prestige. Mr. Bowen urged that local associations be formed with dues large enough so that the

CLEVELAND STATISTICS—RESULT OF ADVERTISING

	Number of Brick Houses	Value
1922	209	\$ 1,932,000
1921	133	1,296,200
1920	81	795,400
1919	91	840,000
	New Brick Buildings	Value
1922	668	\$32,118,300
1921	672	28,630,175
1920	552	47,935,500
1919	670	27,995,500

ducs of its members to the National Association can be paid from the treasury of the local organization. He made an eloquent plea for larger dues, and said that five cents per thousand was inadequate to expand the scope and work of the association and to do the things which should be done. Brick has a wonderful future, Mr. Bowen said, but the men

in the industry must get together and be willing to spend more time, money and energy in the work of promoting their product.

Fine Association in Los Angeles

In the discussion which followed Mr. Bowen's talk, his remarks were fully endorsed by several of the members.

"YOUR NEXT HOME"

ONE HUNDRED AND THIRTY THOUSAND COPIES

New York

"YOUR NEXT HOME"

Omaha

**The Largest Issue of
any Plan Book ever
printed**

**Containing
8,320,000 Pages
illustrating
Brick Houses**

PLACED END TO END THESE PAGES
WOULD REACH FROM NEW YORK TO
OMAHA—A DISTANCE OF NEARLY
ONE THOUSAND TWO HUNDRED MILES

The Immense Quantities of the Booklet "Your Next Home" Which Have Been Shipped Out Indicate the Popularity of This Literature.

Instances were cited where thru local association it has been possible to secure great benefits for brick. Walter Simons of the Simons Brick Co., Los Angeles, stated that not long ago brick manufacturers in his neighborhood were suddenly confronted with the fact that "brick" wars had eliminated all but five manufacturers. These five realized they must get together, and accordingly formed a local association by means of which they could coordinate their efforts with the result that now the brick industry in Los Angeles is enjoying almost unprecedented prosperity.

The chairman then introduced Charles C. Parlin, Manager of the Commercial Research Department of the Curtis Publishing Co. Mr. Parlin gave a most eloquent and stirring talk which held the undivided attention of his hearers for almost an hour. His topic was "Putting New Life in an Old Industry." Mr. Parlin is one of the best informed men in the country on advertising and knows exactly what results are possible by using this great force. He cited instances where old industries have, thru a properly planned advertising campaign, stimulated the demand for their products to an unheard of degree. Mr. Parlin firmly believes that this can also be done for common brick by the common brick industry.

Follow up Advertising

He called attention to the full page advertisement appearing in the February 10 issue of the Saturday Evening Post in which the common brick manufacturers' association has fired its first shot in a new advertising campaign. Mr. Parlin

urged that brick manufacturers use all possible media to cash in to the fullest extent on the market which advertising in the Saturday Evening Post is creating. In order that advertising might be successful, Mr. Parlin said it must be a constant and persistent hammering away to bring home an idea.

He urged that brick manufacturers appeal to the pride and imagination of the people who own brick homes, and to sell them on the value and prestige attached to a home of brick, and thus make permanent boosters of them. This is one of the things national advertising will do. Altho a page advertisement in the Saturday Evening Post costs \$7,000, which may seem expensive, yet the cost is only one-third cent for every issue. Mr. Parlin urged that dues be raised to ten cents per thousand so that brick might be given adequate publicity.

Stoddard Tells Association's Need

Immediately following Mr. Parlin's talk, secretary Stoddard talked to the members "like a Dutch uncle." He called attention to the association's work in the past, and stated that it was now at a crucial stage in its existence, and that in order to progress with the work, the association would have to expand. This can be done only in two ways, either thru an increase in the dues or an increase in the membership. He said that it should be possible for the association to put back into the various localities something of what is gotten out of them. At present the association's finances make this practically impossible.

Secretary Stoddard urged that brick manufacturers get interested in their local building code, and if this does not now give brick a fair chance, the national code just printed can be used as a lever to obtain a fair deal. More attention must be paid to association work, Mr. Stoddard said, and

Concentric and eccentric loading tests made by U. S. Bureau of Standards on brick panels for Common Brick Manufacturers' Association.

Concentric Loading. (Average of Several Tests)

Type of Wall	MORTAR	Maximum Load Withstood	
		Per Ft. (tons)	Per Sq. In. (lbs.)
8" Solid...	Lime.....	17.9	372
8" Ideal...	Lime.....	17.3	361
8" Solid...	Cement-Lime...	26.1	543
8" Ideal...	Cement-Lime...	26.2	547
8" Solid...	Cement.....	32.9	686
8" Ideal...	Cement.....	31.9	666
12 1/2" Solid...	Cement-Lime...	46.7	623
12 1/2" Ideal...	Cement-Lime...	40.7	542
Type 1)			
12 1/2" Ideal...	Cement-Lime...	24.9	333
(Type 11)			

ECCENTRIC LOADING

8" Solid...	Cement-Lime...	19.7	410
8" Ideal...	Cement-Lime...	24.3	507

he urged that manufacturers send in more information of the kind which is published in the monthly digest. Prompt payment of dues is also of the greatest importance in order that the association might make its advertising commitments with a reasonable degree of safety and assurance. The best



Some of the Panels Which Were Tested by the Bureau of Standards in Order to Establish Definitely the Strength of Brick Walls, Both Solid and Ideal.

way of cashing in on association work, he pointed out, is to get after the prospects which are mailed to the members periodically. In the month of January alone 8,000 inquiries were received, all enclosing money, indicating considerable interest on the part of the inquirer.

Boyd Talks on Synthetic Brick

D. Knickerbacker Boyd, consulting architect for the association, gave an interesting talk on synthetic brick. He cited the dangers which would develop if manufacturers would close their eyes to this competition. Efforts have already been made to get concrete brick into committee C-3 on brick of the American Society for Testing Materials, but thus far have been unsuccessful. He cited the efforts which concrete brick interests are making to get their products recognized as being on a par with clay brick. He mentioned an instance where cement brick were specified, as an alternate, where the contractor offered to build the structure with cement brick at a cost of \$1,600 less than clay brick.

Mr. Boyd brought out that clay brick should be as widely distributed as possible, as insufficient clay brick sometimes meant that it was necessary to use its concrete competitor. Most architects, he said, did not take favorably to synthetic brick, chiefly because the product's quality is uncertain, and there is no standard to which manufacturers must adhere. The quality of a clay brick can be told with a reasonable degree of certainty by the eye and ear, but these same methods cannot successfully be applied to synthetic brick.

Cement Brick Not a "Fad"

That cement brick is not merely a fad can be told by the fact that many engineers and men of good standing are interested in the manufacture of these products. As a means of combating the influence of synthetic brick, he urged that manufacturers get behind the C. B. M. A., increase their advertising and publicity work, promote technical and code work, and read the journals in the clay field.

Mr. Boyd's talk concluded the Tuesday sessions, and the meeting was resumed on Wednesday. The first speaker was Col. Leonard P. Ayres, who made predictions regarding business in 1923. He stated that we are in the midst of a period of prosperity caused by a shortage of all kinds of necessities which was first felt in the beginning of 1922. Mr. Ayres does not believe that overseas developments, unless they be of the most serious nature, will stop the present building boom, and building will be exceedingly active for

some time. The only check to the building activity will be rising costs. For the immediate future Mr. Ayres says, better things are in progress. The railroads will buy additional equipment, the automobile industry will continue at a high rate of activity in the beginning of the year, and in general, the months immediately following will see increased activity.

Ayres Says Money Shortage Not Likely

There is no danger of a money shortage, Mr. Ayres said, because insofar as credit is concerned, business could keep on expanding for a long time. Two things will end our prosperity, he said. They are, a shortage of railroad transportation and a shortage in labor. The car shortage will be worse in spring and summer than it is now, and with the increase in business, labor will be more in demand, and plants will compete for it. This will mean that wages will get too high, and a reaction will set in. Therefore, prosperity will continue only until rail and labor conditions affect business. Mr. Ayres believes that labor will strike before long, as it becomes more in demand.

He pointed out that when business is low is the time to get ready for better things. At present we are in the midst of harvest time, and business activity will soon go down.

Ideal Wall Proved Strong as Solid

Dr. A. H. Stang of the U. S. Bureau of Standards, Washington, in his talk on "What the Brick Tests Prove," gave some information of the utmost significance and importance to the common brick industry of America. He described the tests which the Bureau of Standards made on eight-inch and 12-inch solid and Ideal brick walls. The brick tested were Cleveland soft mud common. The panels were laid by bricklayers in an ordinary manner, and an effort was made to have the walls built according to actual practice as nearly as possible. A check kept on the time and materials consumed showed that bricklayers could lay the Ideal wall in the same time that they layed the solid wall, but with a 30 per cent. saving in material. In the solid wall, bricklayers layed approximately 1,500 brick per day, and in the Ideal wall about 1,100, but the wall surface was the same. The crushing tests to which the walls were submitted showed that the Ideal wall is as strong as the solid wall.

Ideal Wall Stronger on Eccentric Load

A glance at the accompanying table will show the relative strength of the two types of walls. The tests made under

eccentric loading conditions show that the Ideal wall is 24 per cent. stronger than the solid wall. This is due to the great flexibility of the Ideal wall.

Results of Tests

The results of the compressive tests made for the Common Brick Manufacturers' Association by the U. S. Bureau of Standards for the purpose of establishing the strength of Ideal and solid walls, led to the following conclusions:

1. About 30 per cent. less material was used for the Ideal than for the solid wall.
2. Time required to lay the Ideal was about the same as for the solid wall—therefore labor costs should be about equal.
3. Compressive tests under central loading, of eight-inch walls, both Ideal and solid, showed that they had equal strength whether lime, lime-cement or cement mortar was used.
4. Under central loading, eight-inch walls laid with cement mortar were 24 per cent. stronger than if laid with lime-cement mortar and 84 per cent. stronger than if lime mortar had been used.
5. When the load was applied with an eccentricity of two inches, the eight-inch Ideal walls were 24 per cent. stronger than eight-inch solid walls when lime-cement mortar was used for both.
6. 12½-inch solid walls were 15 per cent. stronger than Ideal walls, Type No. 1, and 87 per cent. stronger than Type No. 2 of the same thickness when lime-cement mortar was used for all of them.
7. When laid with lime-cement mortar, the 12½-inch solid walls were about 15 per cent. stronger than eight-inch solid walls; 12½-inch Ideal wall, Type No. 1 walls were as strong as eight-inch walls which in turn were 64 per cent. stronger than the 12½-inch Ideal wall Type No. 2.

At the afternoon session, G. A. Bole of the Ceramic Experiment Station, U. S. Bureau of Mines, Columbus, gave a brief summary of the work done and results obtained by the Research Committee which investigated burning conditions on a number of plants in the country. The work of this committee which has been described on previous occasions in Brick & Clay Record has brought out that the possibility for saving of fuel and time is tremendous. Tests showed that the water-smoking period especially offers many opportunities for great savings and more efficient burning methods.

Talks on Bricklayer School

Following Mr. Bole on the program was Otto Best, secretary of the Mason Contractors' Association, Cleveland, who spoke on bricklayer apprenticeship schools. The first school, he stated, was started in Cleveland 12 years ago, to shorten the time which bricklayers were required to serve as apprentices. This school failed, however, because not enough interest was taken by the contractors in the young men attending school. Two or three years ago, a school for bricklayers apprentices was again opened, backed by the Mason Contractors' Association and with the support of the bricklayers' union. This school has been found successful, but it entails considerable work as its pupils need a great deal of watching. Every boy must attend school at least four hours a day, and the rest of his time is put in at work on the wall on actual jobs for which he is paid.

Government Will Help Apprentice Schools

Mr. Best advised that those who desire to establish bricklayer schools in their own community take advantage of the government Smith-Hughes act, which provides money for teaching apprentices. In order to get this money, the state must guarantee an amount equal to that supplied by the

government. The locality should apply to the state and be prepared to match the sum provided it by the state.

Following this talk, D. Knickerbacker Boyd in a few brief sentences gave the manufacturers some excellent pointers regarding some of the important things which must be done. He emphasized the importance of bricklayers schools and cited an instance of a government building in Colorado which was to have been built of brick, but because officials feared



An Ideal Wall Panel in the Bureau of Standards Testing Machine, About to Be Tested to Destruction.

that there would not be sufficient bricklayers to lay the 15,000,000 brick required in the time necessary, specifications were changed to concrete. He suggested that the association get out a book about brick and bricklaying and put it in the public schools of America.

Bricklayer Talks to Brick Manufacturers

T. E. Preece, vice-president of the Bricklayers' International Union of America, and also vice-president of the International Brick Co. at El Paso, Tex., addressed the meeting and pointed out some ways in which bricklayers are promoting the use of brick. 50 per cent. of the local unions, Mr. Preece said, are spending considerable sums of money in advertising. Material for this advertising is being supplied by some of the large associations in the clay industry. A survey of the apprentice situation, he said, indicated that in most localities the number of apprentices was anywhere from six to ten per cent. of the number of bricklayers.

A short address was given by a representative of the Department of Commerce Division of Simplified Practice, who placed at the disposal of the association the resources of the Department of Commerce, and stated that Secretary Hoover is anxious to cooperate with the industry to the fullest extent. In any simplification or standardization work which the association wants to do, the Department of Commerce will be glad to help.

Los Angeles Wants Next Convention

Invitations were extended to the association by Walter Simons of the Simons Brick Co., Los Angeles, to hold its

1924 meeting in that city. He read cordial invitations from the mayor and the Chamber of Commerce of Los Angeles. John P. Cahoon invited the association to Salt Lake City, and William Lutter stated that the association would be most welcome in Chicago.

A resolution was drawn up to be presented to the American Society for Testing Materials, recommending that it set up a committee which will deal only with clay brick and include none of the brick substitutes. The board of directors was given the power to ask the A. S. T. M. to make a separate committee on clay products. The movement of standardization and simplification was also endorsed, and the board of directors enjoined, at its discretion to appoint a committee to cooperate with the Department of Commerce.

Charles H. Bryan Re-Elected

In view of the splendid work and unselfish effort which Charles H. Bryan has put forth to further the work of the C. B. M. A., he was unanimously re-elected to the presidency. This is his third term, and is a signal honor which has seldom been accorded any brick manufacturer.

In accepting the presidency for another term, Mr. Bryan stated that it was much against his will. He made an eloquent appeal for greater cooperation and for the promulgation of more friendly feelings toward one another.

The vice-presidents of the associations are William Cary of the Wm. Cary Brick Co., Albany, N. Y.; John P. Cahoon, Salt Lake Pressed Brick Co., Salt Lake City, Utah; Jordan A. Pugh, Nansemond Brick Corporation, Norfolk, Va.; and B. F. Webber, National Brick Co., Chicago. Ernest S. Barkwill of Cleveland was re-elected as treasurer. At the request of secretary Stoddard, the new office of assistant to the president was made a permanent one, and Charles A. Bowen was appointed to fill it.

* * *

N. B. M. A. ANNUAL HELD IN CLEVELAND

The Thirty-seventh Annual Convention of the National Brick Manufacturers' Association of America was held in Cleveland, Ohio, on February 8 and 9, immediately following the convention of the Common Brick Manufacturers' Association. Instead of continuing the meeting until Saturday, as originally planned, sessions were concluded Friday afternoon. The officers elected for the ensuing year are R. C. Burton, Zanesville, Ohio, president; Jotham Post, East Williston, Long Island, first vice-president; Douglas Stevens, Danville, Ill., second vice-president; Jacob Stocke, St. Louis, third vice-president. Treasurer, John W. Sibley of Birmingham, and secretary, T. A. Randall, Indianapolis, were re-elected.

* * *

DR. STRATTON REVIEWS BUREAU OF STANDARDS WORK WITH CERAMIC INDUSTRIES

"Cooperation between the Bureau of Standards and ceramic industries and users never has been so close and important as during the past year," S. W. Stratton, retiring director of the Bureau stated in his annual report to Secretary of Commerce Hoover. "The national and state governments themselves are larger consumers of tableware and similar articles than is generally supposed. The importance of standard specifications for such materials is, therefore, very great," Director Stratton advised. "The same argument applies to ceramic materials for industrial and building purposes, and the past year has resulted in important progress in standardization of refractories, industrial porcelains, window glass, and so forth.

"Methods of test for china and semi-porcelain tableware have been developed and specifications prepared. The results of this work have shown that American hotel china is superior

in some respects to the best imported plates, and there is no reason why domestic material can not be used exclusively for such service. The physical properties of hotel china bodies have been studied and research work carried out to determine the effect of thickness of plates on resistance to impact, a matter of extreme importance in chinaware which must stand the rough usage to which it is subjected in hotels, restaurants and similar places.

"The properties of foreign and domestic ball clays are being thoroly studied, since it has always been supposed that English clays are the only ones suitable for the manufacture of high-grade ceramic products. It would appear that with the proper treatment the American clays can meet the requirements as satisfactorily as the foreign material. Somewhat similar work has been conducted on foreign and domestic clays as fillers for paper and on clays for coating paper. The Bingham plastometer has been found very useful, in connection with this work.

"In cooperation with a group of manufacturers' organizations, including the American Face Brick Association, the Hollow Building Tile Association, Common Brick Manufacturers' Association of America, and National Paving Brick Manufacturers' Association, investigation has been conducted on the water-smoking and dehydration of clays. It appears as a result of this work that the time necessary for burning can be considerably reduced with corresponding economy in fuel. During the year specifications have been prepared for glass tumblers, glass tableware, and containers, and for window and plate glass.

"In connection with the Federal Specifications Board a conference has been held at the Bureau at which all of those Government departments interested in the purchase of refractories were represented. Variations in the methods of purchase used by different departments were brought out and an advisory committee has been formed to keep in touch with the various commercial organizations and technical societies interested in the subject.

"Investigational work is being conducted by the bureau on samples submitted by consumers with the ultimate object of preparing specifications covering refractories. The method of manufacturing glass pots and regulating resistance to corrosion has been considerably improved during the year, and very successful pots with a capacity of 1,000 pounds each are now regularly made in the laboratory.

"Cooperative investigations have been carried out on architectural terra cotta in cooperation with the National Terra Cotta Association, with the idea of improving this material and studying the uses for which it is best fitted."

* * *

N. P. B. M. A. STILL "SIMPLIFYING"

Returns on the questionnaires, sent out by the National Paving Brick Manufacturers' Association, Cleveland, Ohio, looking to the further reduction in the number of varieties of paving brick, were coming in recently, and indications are that early in March definite information tending to make for a reduction in the kinds of paving brick can be laid before the meeting of the standing committee for the reduction of varieties.

These questionnaires have been sent to practically every manufacturer of paving brick in the country, and already half of the number approached have sent in returns. The information contained in this data is based upon the shipments of the different varieties from each plant during 1921 and 1922. It may be remembered that the varieties have already been reduced to seven. It is believed a further curtailment in varieties may be obtained as a result of the survey now under way.



P. S. TROWBRIDGE

"Dedicated to Progress in the Clay Industry"

Is the slogan that wins the \$100 prize in Brick and Clay Record's \$200 Prize Slogan Contest. This Slogan was submitted by P. S. Trowbridge, Hydraulic-Press Brick Co., St. Louis, Mo.

MR. TROWBRIDGE aptly expressed his reasons for selecting the above slogan:

"I have been a reader of your Journal for many years, and am frank to say that I have found it always in the forefront of progress.

"I think that the slogan given above covers everything for a journal that is progressive and one that gives service to its subscribers, or in the case of a trade journal to the industry which it represents.

"It must be fearless; it must be up to date; it must stand for success in the industry; and the discouragement of all dishonorable practices. For all of these things, Brick and Clay Record stands, and the slogan given covers them all."

"FOR THE GOOD OF THE INDUSTRY"—Slogan submitted by E. C. Estes, Acme Brick Co., Fort Worth, Tex., has been awarded second place and wins a prize of \$50. Mr. Estes gives the following reasons:

"My reason for believing that the slogan, 'For the Good of the Industry' was a good and appropriate one for Brick and Clay Record, is based on the fact that any enterprise that makes a success must be serving its clientele in an advantageous and profitable manner.

"The Brick and Clay Record is certain to be regarded as being highly successful. If one will but stop and think, he cannot help but see the reason why this publication has made such success—it does help the clayworking industry, and has played an important part in making this the third largest industry in the world today.

"After one has the above facts to work with, the only question that remains to be settled is 'How can I condense all those facts into one little slogan?'

"It is then only a matter of using the most effective and convincing words possible, to say a lot of good things in one little sentence."

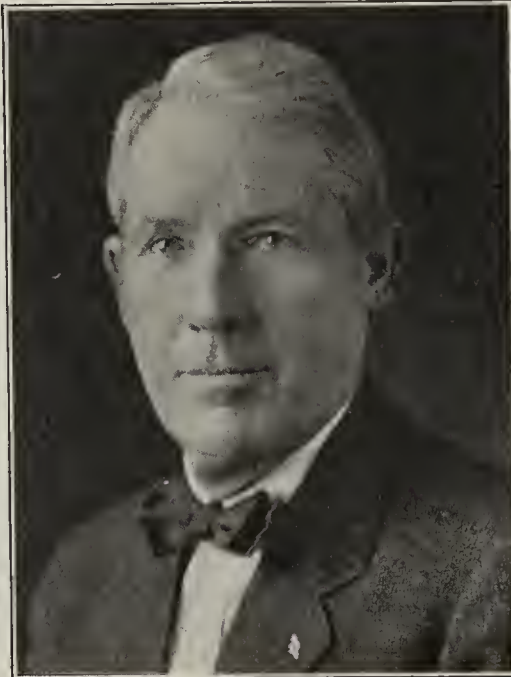
The winner of the third prize of \$25 is H. L. Herrick, secretary of Collingwood Brick & Clay Co., Toledo, Ohio. Mr. Herrick believes that Brick and Clay Record is "NOT ABREAST, BUT A STEP AHEAD" and says:

"It was my desire to convey in a few words, to those interested in the varied brick and clay industries the necessity of keeping posted on the more modern equipment advertised in the Brick and Clay Record and the news items on progress made by those most successful in their line."

Besides the first three prizes there were awarded five prizes of \$5 each to those submitting the five next best slogans. Altho



H. L. HERRICK



J. W. PEYTON
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FRANK R. MAHURIN



*Charles H. Bryan (left)
and Leo A. Krueger*



*Two Successful
competitors in the
Prize Slogan Contest*



there is no question but that the best slogan won, still, those that had to be contented with a lesser position are also fine examples of deep thought and inspirational messages. It is particularly gratifying to Brick and Clay Record that every one of the eight winners are real "honest-to-goodness" clay men. Following are those who will be awarded the \$5 prizes:

"THE INSPIRATION OF THE CLAY INDUSTRY," submitted by Leo A. Krueger, manager of the Cleveland (Ohio) Clay Products Co.

"DELINEATOR OF TRUTH IN CLAY," submitted by Charles H. Bryan, Mercier-Bryan-Larkins Brick Co., Detroit, Mich.

"A STOREHOUSE OF INFORMATION AND INSPIRATION," submitted by J. W. Peyton, manager of Shreveport (La) Brick Co., Inc.

"AS LASTING AS BURNED CLAY—OUR SERVICE TO YOU," submitted by P. W. Burdick, Niagara Falls, N. Y.

"THE PATHFINDER OF THE INDUSTRY," submitted by Frank R. Mahurin, Metropolitan Paving Brick Co., Canton, Ohio.

Says B. & C. R. Inspires to Greater Deeds

These men have been readers of Brick and Clay Record for many, many years and have grown to regard it as a part of their business and a very good friend. Their comments are exceedingly interesting. Leo A. Krueger says:

"In reading Brick and Clay Record it inspires one on to greater deeds in the clay industry. It has a creative power over the clay products manufacturer. As president and manager of my own company, I often secure inspirations from Brick and Clay Record which we successfully use in the production of our clay products, and many other facts too numerous to mention are the reason why Brick and Clay Record is 'The Clay Industry's Inspiration.'"

C. H. Bryan Has High Regard for B. & C. R.

Charles H. Bryan, who is president of the Common Brick Manufacturers' Association, has given his opinion of Brick and Clay Record in a manner which is an inspiration in itself:

"The slogan, 'Delineator of Truth in Clay,' or in other words, 'Specific Sketcher or Writer of Truth in Clay,' expresses my opinion. Every human being be he who he may, down deep in the recesses of his heart admires the truth. So often have you heard the expression, 'You can absolutely depend upon what he says,' so truth to me is a most valuable asset.

"I have been a consistent reader of your magazine for

years. I have watched carefully your advertisements of clay products machinery and I have as yet to discover you printing an advertisement that does not ring true. It is well known in conventions that I have attended that I am unqualifiedly opposed to the promotion and use of machinery, the experimental stages of which have to be borne by the manufacturer. The reports of meetings and especially of the Common Brick Manufacturers' Association have always been verbatim. Therefore in conclusion and summing up the situation as it appeared to me I arrived at the words 'Delineator of Truth in Clay.'"

Says Services Are Lasting

P. W. Burdick says:

"Considering that your magazine's services are rendered to industries producing wares made directly or indirectly from clays of the earth, I believe that it is truly symbolic to suggest in your slogan that the service you offer your readers is 'As Lasting as Burned Clay.'"

"The articles and discussions in your pages deal with such practical and technical subjects which are of vital interest in general to producers of clay products. Moreover you take up in detail and at length in your service department, many individual problems of manufacturers and persons contemplating the production of clay products. This is indeed a most lasting service to those who benefit thereby."

Brick and Clay Record Is "Best Investment"

J. W. Peyton, Shreveport, La., sent Brick and Clay Record a letter accompanying his slogan which is an inspiration to us to continue to do everything possible to serve the clay industry. Mr. Peyton says:

"In selecting as a slogan, 'A Storehouse of Information and Inspiration' I stated as clearly as possible exactly what your magazine has been to me.

"I had never been on a brick plant when I took over the management of our No. 1 Plant some ten years ago, and as a monument of what had been done in that industry in Shreveport, there stood four abandoned plants. Added to this was our own plant, heavily involved, as the result of mismanagement.

"My first act was to try and gather information that would give me practical help in solving problems I knew so little about. One of the best investments made was to subscribe for Brick and Clay Record. As a practical help to the brickman I have found mine invaluable. I carefully read its pages and mark the material relative to our own problems and give them to my superintendent and foreman. For instance, your

article on 'Burning in an Updraft Kiln' in the January number gave us practical help in burning our wares at our new plant.

"As for inspiration given it permeates our entire family circle. My wife and boys are just as enthusiastic believers in the future of the brick business as myself, and I believe in it so strongly that I have just completed the most modern plant, with tunnel kiln, in the South.

"Without a vision the people perish' . . . my vision has been enlarged by reading Brick and Clay Record and I believe we are just beginning an industry that in the future America will point to with pride and will adopt for her slogan 'Build with Brick' as has already been done in the European countries.

"In our great advertising campaign that attracted attention as far east as Detroit, Mich., we caught the inspiration from Brick and Clay Record and gleaned much valuable material from its pages. Most assuredly it can well be said that a brickman without Brick and Clay Record on his desk is like a six-cylinder auto hitting on four."

Reads Every Issue, Cover to Cover

A message which is like a letter from one friend to another came from Frank R. Mahurin. Mr. Mahurin says:

"Gentlemen:

"I thought a great deal about your slogan contest and it occurred to me and I hope to all of your other thousands of friends that what you are more interested in than the slogan is what I, down here five hundred miles away from you, think of you and your paper and what you mean to me.

"With this idea of the contest, I wish you to know that it is a pleasure to tell you in some small way the benefits and enjoyment I have derived from your work during these past years. Your ideas have been worth while, your discussions of primary problems have been helpful, your discussions of current conditions have been convincing. I realize now that you have kept us all bound together in ties of friendship so directly opposed to the older custom of secrecy.

"Many of the plant suggestions you have published I have seen put to good use. Your readers appreciate these ideas

and must know that it requires a lot of time and money to gather such data and from first hand knowledge I know that there is no trouble too great if you see an idea ahead that will benefit the industry.

"Your editorials are worthy the attention of the entire industry, they should be studied by all superintendents and managers alike since they show a study of general conditions present and future and every executive could and should benefit by them.

"Personally, I read the Brick and Clay Record thoroly, twice a month, from cover to cover and find education and enjoyment in every page. Well, to congest into a half-dozen words what you are doing for us is quite a task and I believe, will require the effort of a man more intimate with the language than myself. However, with an apology that it is only about 2.75 per cent. strong, I testify that the Brick and Clay Record is 'The Pathfinder of the Industry.'"

Seven Win Honorable Mention

Honorable mention in the slogan contest was won by seven of the slogans entered. They are as follows: "THE PULSE OF THE CLAYWORKING INDUSTRY," J. M. Baggot, Laclede-Christy Clay Products Co., St. Louis, Mo.

"THE SYMBOL OF PROGRESS"; "THE PATHFINDER OF THE CLAY INDUSTRY"; "LEADS THE WAY TO BETTER PROFITS"; W. A. Barron, Barron Brick Co., Chicago & Roanoke, Ill.

"THE GUIDE TO BETTER BUSINESS"; "RENDERS ASSISTANCE THRU COOPERATION"; G. W. Goostree, Nashville, Tenn.

"INDISPENSABLE SERVICE TO THE CLAY WORLD"; Blakeslee Barron, Danville, Ill.

Brick and Clay Record wants to thank its many friends who sent in the 355 slogans accompanied by their expressions of good will and friendship. Tho all of the slogans cannot be used as a constant watch word in Brick and Clay Record, they will nevertheless serve as an inspiration to its staff to continue to merit the confidence and faith which the industry has in its favorite magazine.

WILL TEST SILLIMANITE REFRACTORIES

Work on the preparation of sillimanite from clay is being continued at the northwest experiment station of the Bureau of Mines at Seattle, Washington. Synthetic mixtures containing varying quantities of alumina will be prepared from kaolin and purified alumina. These products will be tested and the best mixture ascertained. Then, attempts will be made to produce such a mixture by fusing clay in the electric furnace in presence of carbon.

The products made in the electric furnace in the study of the preparation of sillimanite will be subjected to the ordinary tests to determine their suitability as refractory materials. Brick will be made and burned and tested in operating electric furnaces. If it is found necessary, an electric furnace for burning sillimanite refractories will be designed and tested.

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BURN BRICK WITH ELECTRICITY

A recent clipping from one of our newspapers contained an interesting report of an experiment in Norway to burn brick by electricity. The report read as follows: "Experiments have been carried on in western Norway, near Sandnes, in operating brick kilns by electricity. The kiln used was of an American type, adapted to this special use, and the trials are said to have been very successful. The brick were evenly and thoroly burned, and by regulating the temperature, light and dark burned brick are easily obtained.

"It is calculated that, with manufacture on a large scale, the average consumption of electrical power would be one kilowatt hour per brick. Besides burning brick, it is said that the new electrical kiln could also be used for the burning of lime, and even in pottery works.

"One condition for the successful utilization of electric power in the brick industry is that electrical energy be supplied in sufficient quantity at cheap rates, as immense quantities would be consumed. Thus at the brick plant near Sandnes, where about 10,000,000 brick are manufactured annually, 10,000,000 kilowatt hours of electrical energy would be used, or about twice the quantity which is consumed in that community at present."

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BOOK ON GRADING OF EARTH ROADS

Those interested in possibilities of earth roads will possibly find the new Circular No. 10 of the Engineering Experiment Station, of the University of Illinois at Urbana, entitled "The Grading of Earth Roads," of considerable value. This bulletin is written by Wilbur M. Wilson, who gives detailed information concerning the work preliminary to grading, the successive round of the grader, and the operation of the grader on an experimental earth road.

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In next issue Col. Leonard P. Ayres will forecast the business future for 1923.

Silver Jubilee Convention Draws 600

A. F. Greaves-Walker Elected New President of A. C. S. at Pittsburgh Convention — Heavy Clay Products Division Has 65 Delegates

THE SILVER JUBILEE CONVENTION of the American Ceramic Society was very fittingly celebrated in a manner appropriate to the occasion. An attendance of nearly 600 marked up another new record for the society which in recent years has developed the habit of expanding and exceeding in nearly every manner all previous years' activities.

Many of the charter members were present, and each one honored and acclaimed for his vision and pioneering, which has resulted in the development of an organization most influential and powerful in the enfoldment of industrial ceramics.

All Divisions Well Attended

Following the plan developed in recent conventions, the society, which is composed of seven industrial divisions, convened in one general gathering and for a banquet and smokerette. The remaining time was spent in division meetings where members and guests met only with those groups discussing problems of direct interest to their industry.

A considerable number of ladies were present this year, and they were escorted in special parties thru the plants of particular interest to them, and to theatre parties, and afternoon teas.

Banquet Is Great Success

The general banquet on Monday evening, at which L. E. Barringer of the General Electric Co. presided as toastmaster, was attended by some 500 people. The speakers were, A. Silverman, chairman of the Pittsburgh District Section; Frank H. Riddle, last year's president of the American Ceramic Society; W. Roscnhain of the National Physical Laboratory, Pennington, England; Dean Revis, University of Pittsburgh; and Carl Langenbeck. Edward Orton, Jr., dean of American ceramists, who, perhaps more than any other man is responsible for the development of the ceramic industries in this country, was presented with a bound volume containing 50 letters of appreciation from former students, who have now made their mark in industry.

A. F. Greaves-Walker New President

Mr. Orton installed the new officers at this banquet, these being: President, A. F. Greaves-Walker; vice-president, R. D. Landrum; secretary, Ross C. Purdy; treasurer, Ralph K. Hursh; trustee, R. R. Danielson. Mr. Greaves-Walker is production manager for the American Refractories Co. with headquarters in Pittsburgh, and plants in Baltimore, Md., Joliet, and Danville, Ill., and Baraboo, Wis. He is well known to readers of Brick and Clay Record, having contributed many valuable articles to this journal, and being author of a volume published by and distributed thru Brick and Clay Record. Mr. Walker is not only a technical man of considerable note, but also has had much experience on the business side of the industry, which fits him admirably for the presidency of the American Ceramic Society.

A smokerette on Tuesday evening at which approximately 600 ladies and gentlemen were present, and a theatre party on Wednesday evening completed the social features of the convention. Thursday and Friday were spent in plant visits to various clay products, glass and whiteware plants in the Pittsburgh district.

An unusually large display of ceramic products including all varieties was on exhibition this year. Samples of face brick, refractories, tile, terra cotta, electrical porcelain, dinnerware, glass, enamel and pottery products comprised the exhibits.

The general sessions were held on Monday morning and afternoon and presided over by president Frank H. Riddle.

Riddle Tells of Accomplishments

In his opening address, president Riddle called special attention to some of the accomplishments and occurrences of the past year, and to the prospects and outlook for the future.

The year just ended has been the first year during which the society has had the full time services of secretary Ross C. Purdy. Partly for this reason and partly because of other changes in policy, such as the removal of the supervision of advertising solicitation to the office at Columbus, Ohio, 1922 was an experimental year, especially in a financial way.

*A. F. Greaves-Walker
New President of the
American Ceramic
Society*

and

*R. D. Landrum,
Newly Elected
Vice-President*



While the income did not quite equal what had been expected at the start of the year, and expenses had to be met by cutting into the society's surplus, the revenue from advertising in the journal of the society and also from membership dues showed substantial increases. In this connection it was interesting to learn that 140 new members were secured in 1920; 235 in 1921, and 368 in 1922.

Hope to Publish Engineer's Handbook

The president also spoke of the textbook on art work and the engineer's handbook, which the society has contemplated compiling and publishing, and expressed the hope that this work would be continued and carried to completion shortly.



ROSS C. PURDY

The chairman of the board of directors of the Pittsburgh Plate Glass Co., W. L. Clause, followed with an exceptionally complete and lucid explanation of and dissertation on the economic aspects and effects of the future based both upon the conditions at present existing in Europe and our consequent foreign policy and also upon our own strictly internal or national problems. He spoke especially of the inadequacy of our transportation system and cited the fact that president Barnes of the U. S. Chamber of Commerce has stated that this transportation inadequacy costs the farmers over \$400,000,000 yearly. He further showed that whereas our population is 2.7 times as large as it was in 1870, the tonnage carried by our transportation systems is now 17 times as large as it was in 1870. This shows that the demands on our railroads are increasing very fast and will soon throttle industry unless the railroads keep pace. The remedy he pointed out, to avoid congestion and stagnation in the future, is the immediate development of our internal waterways.

Salisbury Asks for Cooperation

B. E. Salisbury, president of the Onondaga Pottery Co., of Syracuse, N. Y., followed with a plea for better cooperation and less friction between the scientist in the laboratory and the practical man in the shop or operating department. He also stated that the laboratory can be of excellent service and give valuable assistance to the purchasing department.

The address of Professor Charles F. Binns was a plea for the appointment of one person in every tableware plant who would be responsible for the development of art in the design

of the product. It is his opinion that there is not enough individuality in design at the present time and too much importance given to commercial considerations. He argued that the artistic quality of the product can be increased without affecting the profits at all.

Education a True Engineer Should Have

Professor Edward Orton, Jr., gave a masterly dissertation on the education that a true engineer should have. He explained that the foundation should be a thoro training in reasoning powers, and the cultivation of cultural tastes. He felt that the present trend of education was directed too much toward developing a student's cultural tastes and not enough toward the training of his reasoning power which is the real foundation for success. He further explained that there is an urgent need of the engineering type of mind in civilization and in civic problems. He urged all engineers to take more interest in the social scheme, to join the Chamber of Commerce or local civic club of the community in which each one is working, to the end of helping our neighbors to higher ideals and better conditions.

Dean Cooley of the University of Michigan told of the history of the formation of the Federated Engineering Societies and explained how its scope is limited to problems that affect all engineering branches. Many of the activities have already borne fruit such as standardization of products, licensing of engineers, improvement of patent office practice, the study of business cycles, and reforestation. Other problems such as transportation and immigration are being studied at the present time.

Offers Services of U. S. Bureau of Mines

Dr. H. Foster Bain gave a very complete explanation of the activities of the U. S. Bureau of Mines, of which he is director, and showed how the bureau can be of fullest assistance to the clay products industry. He explained that all of the studies of the bureau can be indexed under four classes; first, the methods of mining or digging materials from the earth; secondly, the preparation of materials for use, after being mined; thirdly, the use of fuel in industrial combustion and fourthly, the installation of safety devices and instruction in first aid.

Dr. Walter Rosenhain, of the National Physical Laboratory, of England, and technical author of note, was introduced, and spoke of the thoro investigations they are making in

According to the registration, which was only partly complete, the attendance at the various divisions were divided as shown:

Heavy Clay Products	65
Refractories	73
Terra Cotta	26
White Ware	81
Enamel	65
Glass	49
Art	23
Not Classified as Above.....	116

refractories. In muffle work, at times, they use a refractory with a glaze which just melts at the operation temperature. This makes it gas tight, which they desire.

Coupling Technical Data

Dr. E. W. Washburn followed with an explanation of the work with which he is now connected, namely; the International Critical Tables of Numerical Data of Physics, Chemistry and Technology. The object is to gather together from publications and other sources, tables on all types of

qualities of ceramics, such as refractory qualities, drying, burning, abrasion and liquefaction.

The general sessions closed with an explanation by A. L. Scott of the activities of the American Hotels' Association toward the standardization of everything purchased. He stated that if any industry is able to adopt standards, the hotel association will buy only from the manufacturers producing those standard products.

Heavy Clay Products Division

THE INTEREST and enthusiasm manifested at the heavy clay products division exceeded that of the previous two meetings of this useful organization. Under the able leadership of C. Forrest Tefft, production manager of Fiske & Co., who was chairman last year and was secretary the year before, the heavy clay products section has become the most potent organization in the advancement of technical and plant operation knowledge in the clay industry.

For the ensuing year R. B. Keplinger, Metropolitan Paving Brick Co., was chosen chairman of the division; Amos Potts, Clay Products Co., secretary, and W. H. Herbert, W. G. Bush & Co., chairman of Membership Committee.

At the various meetings of this convention about 22 papers were presented touching on various phases of brick and tile plant operation. The first paper was read by F. T. Owens, vice-president of Fiske & Co., who spoke on the subject of the importance of figuring taxes into costs. This paper ably argued the necessity of first using a proper cost system and of entering every legitimate item, including taxes, in the costs.

Handling of Supplies

The second paper was prepared by L. B. Rainey, production manager of the Fallston Fire Clay Co., on the subject of the proper handling of supplies. Mr. Rainey stated that there were many opportunities for economy in the purchase of and recording of supplies used in brick manufacturing. He suggested that a card be prepared for each item, recording the quantity, quality and specifications of each piece, together with such other information as would be desirable in this connection. It was pointed out in the discussion which

In 1924 the American Ceramic Society will in all probability hold its annual meeting in Atlantic City, New Jersey. This city's close proximity to both pottery and heavy clay products centers should make it an ideal convention city.

followed that in many instances money was needlessly lost due to shutdowns lengthened by the lack of supplies on hand to repair equipment.

"Depreciation Costs and How to Handle Them" was the title of a paper read by D. F. Stevens, of the Acme Brick Co. In this talk and in the discussion that followed, the following salient points were brought out: A study should be made of the average life of every piece of equipment and building used on a clay plant. Appraisals will be found valuable in determining depreciation figures for clay plant equipment. Industry is facing the distribution of surplus by reason of changes that promise to take place in income tax laws.

M. W. Blair Speaks on Wastes

Marion W. Blair, of the Murphysboro Paving Brick Co., read a very excellent paper entitled, "Wastes That Should

Be Eliminated in Heavy Clay Products Manufacture." Mr. Blair covered many phases of clay manufacturing in his talk. One of the points he discussed was the long burning time that still continues to be used on clay plants. The answer to the problem of eliminating waste is the employment of trained men in the industry—men who could interpret the results of investigations made in behalf of improvement of clay manufacturing and use them to advantage in lowering costs on the plant.

Davis Brown, of the Hadfield-Penfield Steel Co., discussed the various methods of gathering clay. This brought about a lively discussion on the subject of shale planers. It was the opinion of many of those present that the shale planer has now reached a stage of development that merits its use in a very wide field of clay manufacturing. It is ideal in the way it prepares material and its operation is low in cost.

Eliminating Limestone Pebbles From Clay

Many plants will be interested in the problem that Roy A. Horning discussed, which dealt with the elimination of lime-

A Summer Meeting of diversified interest is being planned this year. If present plans are carried out, Detroit and Mt. Clemens, Mich., Sheboygan, Wis., and Chicago will be visited.

stone pebbles from clay. Mr. Horning described his experience with a surface clay which contains 18 to 20 per cent. of moisture, and which is used in the manufacture of soft mud brick. Due to the high moisture content, it is impracticable to grind this clay in a dry pan and in this way crush the limestone to a state of fineness where it is less effective in causing brick to spall. To solve the problem a disintegrator was used, together with a compound set of rolls. The top set of rolls have an 18-inch face, one traveling at a higher speed than the other roll. The upper rolls are set about 1½ inches apart, and a series of knives protrude one inch into the space between the rolls. The bottom rolls are placed one inch apart. The material is then passed over a one-inch screen. This screen eliminates a great deal of the pebbles. Below the screen is located a Tyler vibrating screen of ¼-inch mesh. The material that passes thru this screen is passed to the machine. Mr. Horning found that this system had worked quite effectively and improved the product of the plant considerably over the brick made by any previous methods.

In the discussion that followed it was pointed out by one of the men present that many plants now experiencing trouble with their rolls not gripping the stones will find that by increasing the diameter of the rolls the difficulty will often be overcome.

Study Specific Heat of Clays

One of the most interesting papers presented was a report of an investigation made on a subject which has been given but very little study in the past. Results of a study made on the specific heat of clays from 25 deg. to 1,200 deg. C., were reported. Heretofore, in drying and burning calculations the specific heat of clay had been assumed usually as .24. In the investigation made by L. Navias, E. W. Washburn and C. W. Parmelee of clays of different types, it was found that there was a considerable variance of the specific heat during certain temperature intervals during the heating up of the clays. On the whole, the average specific heat in the interval of 20 to 1,200 degrees was found to be .51. In

cooling ware the specific heat was found to be .19 to .32. The result of this investigation will aid considerably in calculating theoretical heat requirements for burning clay ware, and might be used as a guide to accomplish fuel economies.

Automatic Stokers Discussed

Another paper that created considerable attention and brought out much discussion was one read by John Martin, of the Straitsville Impervious Brick Co., on automatic stokers for firing heavy clay products. Mr. Martin has been spending a great deal of time and study on the development of an automatic stoker for use on periodic kilns. The present stage of development of his stoker is quite advanced, and he feels that he has now designed an apparatus that will meet the demands both as to practicability and economy. In his paper he brought out some of the points that should be considered in the development of automatic stokers for firing kilns, some of which he enumerated as follows:

A stoker should be designed to be operated with forced draft. This will enable the manufacturer to increase the amount of coal consumed per unit of grate area and to produce hotter fires, as well as securing a better distribution and circulation of heat thruout the kiln. Secondly, the stoker should be rugged in construction. Third, it should discharge ashes automatically, and not require hand operation of the grates. Fourth, the stoker should be built so that it will produce the minimum amount of clinkers. Fifth, it should be designed to burn screenings and slack. Sixth, the stoker construction should be such that it will prevent fine material falling thru. Seventh, it should have ample fuel burning capacity without being forced. Eighth, the stoker should be capable of producing both reducing or oxidizing conditions at will. Ninth, the grate surface should be as near the kiln floor as possible, and the stoker thus designed to permit operation of such conditions.

Mr. Martin is of the opinion that the underfeed type of stoker was one of the best forms to use as a base in the design of automatic kiln stoker.

Describes Fiske's Darlington Plant

An explanation of the unusual burning and drying system in use at the Darlington, Pa., plant of Fiske & Co. was prepared by C. Forrest Tefft.

The outstanding feature of this plant is that, altho they use round down-draft kilns and burn with natural gas, they have no kiln stacks. The draft is produced by two fans, which pull the products of combustion thru underground flues similar to those used in a waste heat drying system. The draft, therefore, is induced.

One fan is located at the cold end of the dryer and pulls part of the products of combustion from the underground flues thru a series of eight-inch cast iron pipes located beneath the dryer trucks. By this arrangement it is unnecessary to provide any heat, in addition to that obtained from the kilns for the dryer. At the same time no gases from the products of combustion or from a cooling kiln come into contact with the ware, so that there is no chance of scumming or discoloring on the ware. Fresh air is drawn from the outside and passes around the flue and around the cast iron pipes containing the products of combustion. This air, becoming heated, dries the brick and passes out of the dryer thru a stack, carrying the moisture with it.

Water-Smoking Done Rapidly

The other fan is located at the hot end of the dryer at the end of the flue extending from the kilns. The duty of this fan is to keep the kiln draft at the proper point by pulling part of the products of combustion and exhausting them into the atmosphere. The first fan could not produce the required

draft unaided because the friction thru the eight-inch cast iron pipes would be too great.

Another advantage of this system is that the water-smoking is carried on at the fastest possible speed consistent with the quality of the brick being burned. This reduces the burning time and altogether reduces the fuel consumption. Likewise the number of kilns that are required for a given output are reduced or a larger output can be produced from a given number of kilns.

The fuel used at this plant is natural gas, but coal is substituted when the gas pressure drops too low and there is no change in operations.

This burning and drying system is practically independent of weather conditions, as the proper draft can be maintained at all times.

The editors of Brick and Clay Record have visited this plant several times. Thus they can report that this plant also has a set of standard instructions for the burner, specifying the exact heat and the exact draft at each fan that should exist at all times during the burn.

Refractories Division

THE REFRACTORIES DIVISION divided its papers and studies into two general divisions, Manufacturers' Problems, which were discussed the first day and Consumers' Problems, which were taken up the second day. This program was followed and most likely will be continued next year, in order, if possible, to interest the users of refractories in this division. It is aimed to make a mutual study of both the possibilities and requirements of refractories to the end that both the producer and consumer will benefit, after realizing and helping to solve the problems of each other.

The sessions were presided over by J. Spotts McDowell,

Table I

The Percentage Loss in Crushing Strength of Refractories Due to Treatment with Different Gases at 950 deg. C.

	Sulphur Dioxide	Chlorine	Carbon Monoxide
Silica	18	18	35
Clay Brick (High Iron) ..	16	20	29
Clay Brick (Low Iron) ...	27	24	31
Diaspore	0	5	6
Chrome	37	100	31
Magnesite	30	100	12

chairman, E. H. Van Schoick, vice-chairman, and Fred A. Harvey, secretary.

Ralph W. Stone, assistant State Geologist of Pennsylvania, opened the session with an explanation of the deposits of plastic and flint fire clays and of ganister in Pennsylvania.

Specifications for Silica Cement

E. N. McGee, Semet-Solvay Co., followed with a paper on the specifications to which first quality silica cement should conform. The usual mixture is about 50 per cent. silica bats, 25 per cent. plastic clay, and 25 per cent. ganister.

The most important point is refractoriness and under no consideration should the quality of the cement be lower than that of the brick with which it is used. The second important quality is fineness. Silica cement should be ground finer than fire clay, as it works better and makes thin joints possible. Bonding quality is also important.

(Now turn to page 352)

National Code Endorses 8-Inch Wall

Big New Fields Opened to Brick and Tile by Decision of National Building Code Committee—Ideal Wall Also Permitted

ONE of the most important developments in the construction industry, which is bound to affect the sale of brick and tile has been made public recently in the issuance of the report of Secretary Hoover's building code committee on Recommended Minimum Requirements for Small Dwelling Construction. The good news in this report for clay products manufacturers, as announced briefly in the last issue of Brick and Clay Record, is that eight-inch walls of brick or tile for dwellings less than 30 feet in height are considered good and sound construction.

The 12-inch masonry wall has been one of the greatest deterrents to the more extensive use of brick and tile and has been one of the chief reasons for the now famous ratio of 89 to 11; that is, 89 per cent. of all dwellings frame and 11 per cent. divided among other materials. Where local building codes do not now permit eight-inch walls manufacturers can, thru organized effort and by using the recommended minimum requirements as a club, make a strong bid to have these codes changed.

Associations Did Splendid Work

The greatest credit is due the Common Brick Manufacturers' Association and Hollow Building Tile Association, whose efforts made it possible for the building code committee to gain sufficient data on those materials to make their recommendations authoritative. In its introduction, the report mentions especially the elaborate and informative brief which the Common Brick Manufacturers' Association submitted. Information on the strength of solid brick and Ideal or brick hollow walls was so limited that the association found it necessary to have tests made on brick panels. Accordingly, the Bureau of Standards tested for the Common Brick Manufacturers' Association 42 panels of 8-inch and 12-inch Ideal and solid wall construction. The data obtained from these tests was used as a basis in arriving at the recommendations for brick construction in the report of the building code committee.

Using the following excerpt from the preliminary report of the Senate Committee on Reconstruction and Production as an indication of the angle from which the work had to be attacked, the committee decided to get information from all authoritative sources:

"The building codes of the country have not been developed upon scientific data, but rather on compromises; they are not uniform in principle and in many instances involve an additional cost of construction without assuring more useful or more durable buildings."

Best Engineering Minds of Country Contribute

The information from which the building code committee compiled its report was obtained from the country's leading engineers and architects, from the important cities of the country, from insurance companies, national manufacturers' associations, and a number of other sources. Thus, these recommendations might be considered as the general opinion of competent authorities thruout the country.

Following are some excerpts which are of the greatest importance to brick and tile manufacturers. It must be borne in mind that these requirements are for small dwelling construction only.

"The minimum thickness of exterior solid brick walls shall be eight inches for a height not exceeding 30 feet. When gable construction is used, an additional five feet is permitted to the peak of the gable."

"The unsupported height of isolated brick or plain concrete piers shall not exceed ten times their least dimension."

Tests Which Brick Must Meet

"Brick, whether of clay or other materials, used for an eight-inch exterior, party or chimney walls or piers, shall at least meet the following requirements:

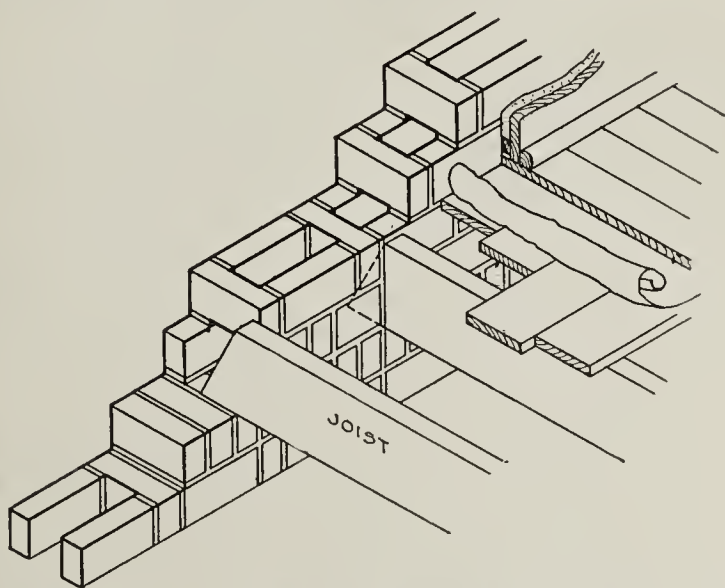
KIND	Absorption limits, Per cent.		Compressive strength (flat), pounds per square inch.		Modulus of rupture, pounds per square inch.	
	Mean of five tests maximum	Individual maximum	Mean of five tests, minimum	Individual minimum	Mean of five tests, minimum	Individual minimum
Face Brick.....	10	12	1,500	1,000	300	250
Common Brick.....	12	15	1,500	1,000	300	250

"The minimum thickness of exterior walls built of hollow building tile, hollow concrete block, or hollow walls of brick shall be eight inches for the uppermost 20 feet. The total height shall be limited to 30 feet, provided that when gable construction is used an additional five feet is permitted to the peak of the gable." (In the term "hollow walls of brick" is included the ideal wall.)

Tile Must Stand 1,200 Lbs. per Sq. In.

"Hollow building tile or hollow concrete block shall not be used for isolated piers unless solidly filled with concrete."

"The average compressive strength of hollow building tile used for exterior or party walls or piers laid with cells ver-

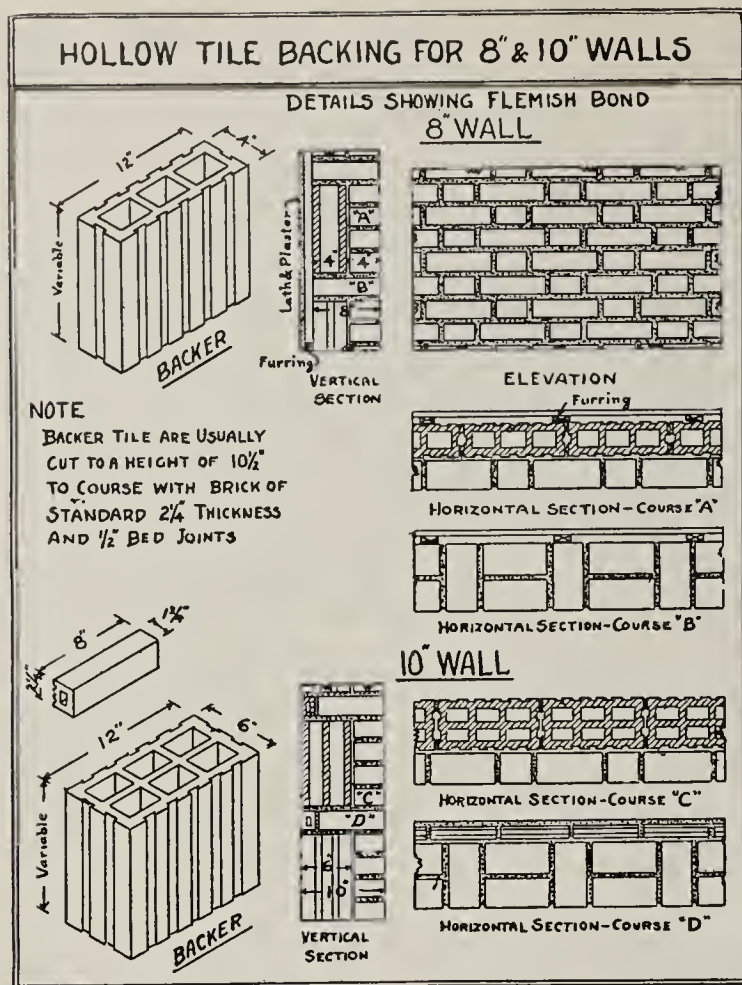


Details of Eight-Inch Ideal Wall, Illustrating Best Methods of Joist Support.

tical, shall be not less than 1,200 pounds per square inch of gross sectional area tested with the webs vertical.

"The average compressive strength of hollow building tile laid with the cells horizontal, and which are tested with the cells in that position, shall be not less than 700 pounds per square inch of gross sectional area."

"All chimneys built of brick, stone, concrete block, or hol-



Details of Building Brick Veneer on Tile Backing in Eight and Ten-Inch Walls.

low building tile, except chimneys having solid brick walls eight inches or more thick shall be lined thruout with fire clay flue lining. Flue linings shall be not less than three-fourths of an inch thick."

Only 41% of Cities Allow 8-Inch Wall

According to an investigation of the Bureau of Standards of the requirements of 134 building codes, 55 codes or about 41 per cent. of the number permit construction of two-story dwellings with eight-inch exterior walls; six codes allow three-story dwellings with eight-inch walls, and 13 codes permit the upper two stories of three-story dwellings to be eight inches thick. Practically the same figures were obtained by the Common Brick Manufacturers' Association in its survey, which showed that of 113 codes, 39 per cent. permit two-story dwellings with eight-inch brick walls.

Eight-Inch Walls Are Safe

From a summary of the information obtained by the building code committee, "it appears that 2 or 2½ story dwellings with eight-inch brick walls are in use in at least 40 per cent. of American cities; that such walls are safe from a structural viewpoint and practically as resistant to lateral forces as 12-inch walls; that they provide sufficient insulation to prevent transmission of fire thru the walls in buildings of such occupancy; and tho less fire resistant generally than 12-inch walls, their shortcomings in this respect are not sufficiently important to justify restrictions against their use for two-family dwellings."

Write for Copy of this Report

The appendix following the actual building code contains most excellent information on the use of brick, tile and other products, and goes into considerable detail regarding structural practices which are considered sound. Every manufacturer of clay building materials should obtain a copy of this report at once and become familiar with it with a view to having his community adopt the practices recommended.

Apply to the Government Printing Office, Washington, D. C., for "Recommended Minimum Requirements for Small Dwelling Construction." The price is 15 cents.

Perfects New 12-Inch Brick Hollow Wall

A NEW TYPE of construction for walls of a thickness of 12 inches or more has been developed and patented by Walter Simons of the Simons Brick Co., Los Angeles, Cal. The construction is similar to that formerly termed "blind headers."

The general arrangement of brick follows the Ideal wall construction, but has the advantage that the face of the wall shows brick laid flat instead of on edge, as usually shown in Ideal wall construction. This makes this type of construction more attractive to the eye since the public is more familiar with the appearance. Standard size brick are used for five courses and laid with a four inch air space between. On the sixth course, the special shapes shown in the accompanying illustration are used. The stretcher brick or those used on the inside and outside of the wall are the standard sized brick with the corners cut out. The header brick are the same thickness as the standard brick, but have round ends and two indentations, one-half inch deep, upon the top. These indentations are provided to enable the mortar to sink into them and increase the tie between the two sections of the wall. The bottom of this special header is a rough wire-cut surface.

Can Be Made Any Process

These special shapes can be made by either the stiff mud or soft mud process, depending upon which is used in the production of the standard brick which are used for the five courses between the special header courses.

There are several advantages claimed by Mr. Simons for this new type of construction. One is that the wall can be

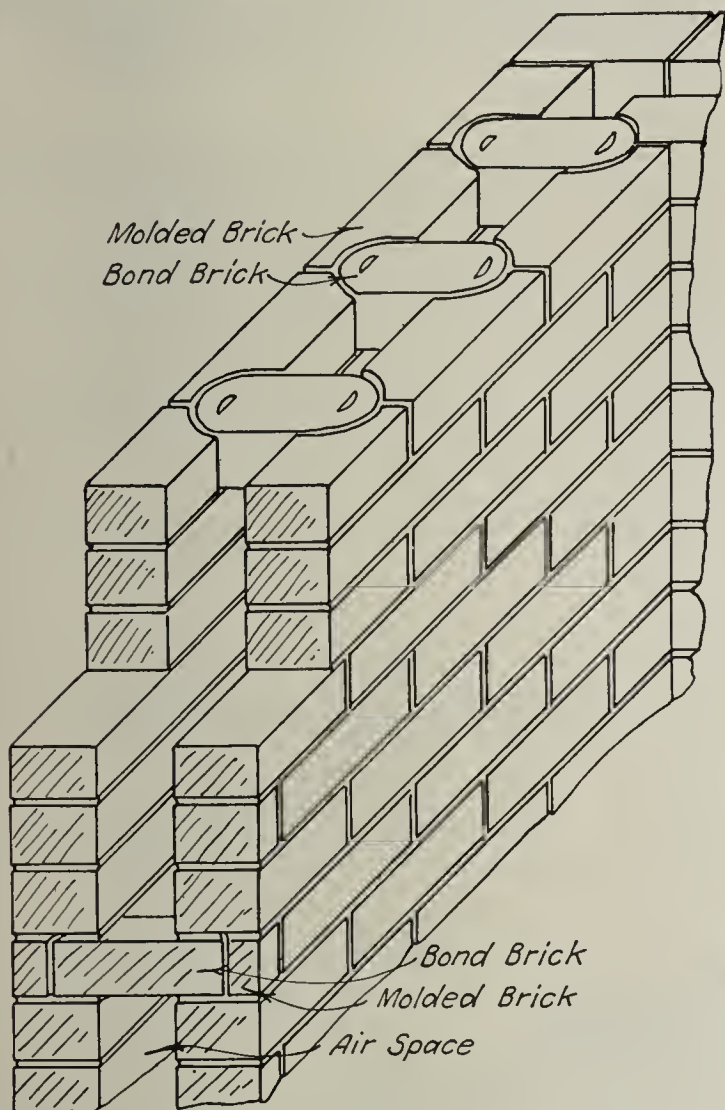
made absolutely waterproof. If desired, one end of the special header can be dipped into a solution of asphaltum and distillate mixed in a percentage of half and half. This is not necessary, however. The dead air space gives all of the ad-



Specially Shaped Brick Used for the Binding Course in Building 12-Inch Hollow Walls.

vantages of insulation that are provided in the Ideal wall or hollow tile construction. One-third of the material is saved over that used in ordinary 12-inch solid wall construction.

This means one-third of the brick, sand, lime and cement that are used in the mortar. It also means a saving of one-third of the labor used in mixing the mortar and getting the material to the masons. The actual saving of the mason's time, that is, in laying the wall, amounts to about 20 per cent. Down spouts, electric conduits, pipes and so forth, can be run into the dead air space if desired, thus reducing expense and avoiding trouble. These special shapes are delivered by the Simons Brick Co. at the same price as the standard brick. They have supplied material for a number of warehouses,



Details of Hollow Wall Construction with the Specially Shaped Brick Which Make the Blind Headers for Bonding.

schools and residences since this special construction was patented in 1919. In some cases the alternate bids on school houses have shown a difference in favor of this new type of construction of all the way from \$1,400 to \$6,800.

Intended to Compete with 12-Inch Wall

This type of construction is not intended to replace or be compared with an 8-inch wall, either solid or of Ideal wall construction. It is intended to be compared with walls 12 inches and more in thickness. A 12-inch wall of this new type of construction costs very little more than an eight-inch wall, either solid or of Ideal wall construction. The general appearance, however, is much better since the window frames can be set further back from the face of the wall, thus increasing what architects term the reveal. The result is a building with a better appearance.

Up to the present, this improved construction has been used only in Los Angeles, but Mr. Simons is preparing now to license the manufacture of these special shapes in different parts of the country.

Mr. Simons says, "It is simple in construction and wonderful in possibilities."

HERE ARE CORRECT OFFICERS OF H. B. T. A.

Thru an error the directors named in the report of the Hollow Building Tile Association convention in the February 6 issue of Brick and Clay Record, were of last year's board instead of those elected at the 1923 meeting. Following is the correct list of officers and directors who will have charge of the association's affairs during the current year: James T. Howington, Coral Ridge Clay Products Co., Louisville, Ky., president; Wm. Hutton, Jr., Troy (N. Y.) Fire Proofing Co., vice-president; H. C. Downer, Malvern (Ohio) Fire Clay Co., treasurer; J. S. Sleeper, Conway Bldg., Chicago, secretary.

Directors are: H. M. Keasbey, National Fireproofing Co., New York; Wm. Hutton, Jr., Troy (N. Y.) Fireproofing Co.; H. C. Downer, Malvern (Ohio) Fire Clay Co.; R. G. Wallace, National Fireproofing Co., Pittsburgh, Pa.; E. W. Dailey, North Iowa Brick & Tile Co., Mason City, Iowa; J. T. Howington, Coral Ridge Clay Products Co., Louisville, Ky.; J. A. Dailey, Shale Hill Brick & Tile Co., Chillicothe, Mo.; V. L. Yepsen, Anness & Potter Fire Clay Co., Woodbridge, N. J.; J. B. Whitacre, Whitacre-Greer Fireproofing Co., Waynesburg, Ohio; F. R. Hale, Vigo-American Clay Co., Terre Haute, Ind.; C. W. Dixon, Columbus (Ga.) Brick & Tile Co.; H. R. Straight, Adel (Ia.) Clay Products Co.; J. J. Amos, Humboldt (Kan.) Brick Mfg. Co.; P. E. Miller, Athens (Tex.) Pottery Co.



WESTERN PAVING BRICK MEN MEET

The Western Paving Brick Manufacturers' Association held its annual convention in Kansas City, Mo., and the event was one of the biggest in Kansas City during the winter months. A large banquet was held and almost 100 members and their friends were in attendance. Robert Nesch, of Pittsburg, Kan., vice-president of the organization, presided over the business sessions. Many important matters came up for discussion and were disposed of. The association is one of the organizations which make up the National Paving Brick Manufacturers' Association.



BLAST FURNACE TEXT-BOOK REVISED

The manufacturers of refractories will be very much interested in the third edition of the work "Blast Furnace and Pig Iron," by Dr. Robert Forsythe. The second edition was published in 1907 and since that time Dr. Forsythe has died. The present edition or revision has been made by J. A. Mohr and C. A. Meissner and follows along the same lines as the original volume.

The 363 pages containing 74 illustrations are full of data on the operation of a blast furnace, the chemical actions that take place, the properties of the materials used in the furnace, proper design and equipment of a furnace and other important and pertinent information that must be studied by everyone who is interested in increasing the efficiency of a blast furnace.

The work is published by the U.P.C. Book Co., Inc., 243 W. 39th Street, New York, or can be obtained thru the book department of Brick and Clay Record.



PUBLISH CERAMIC INVESTIGATIONS

Serial 2437, "List of publications on ceramic investigations of the U. S. Bureau of Mines," has just been issued and may be obtained from the Bureau of Mines, Washington, D. C. The serial lists articles on ceramic topics contributed by members of the Bureau of Mines staff to the various technical journals as well as publications on ceramics issued by the bureau.

BLAZING A in AUGER BRICK M

Motor Drive Advantages

Why?

1. Operation noiseless.
2. Eliminates vibration.
3. Positive drive. No power loss by friction.
4. Compact. Takes up little room.
5. Eliminates steam on many plants.

Bearings

All plain bearings are extra long, heavy and ring oiled, caps being held to the frame by heavy studs fitted with lock nuts.

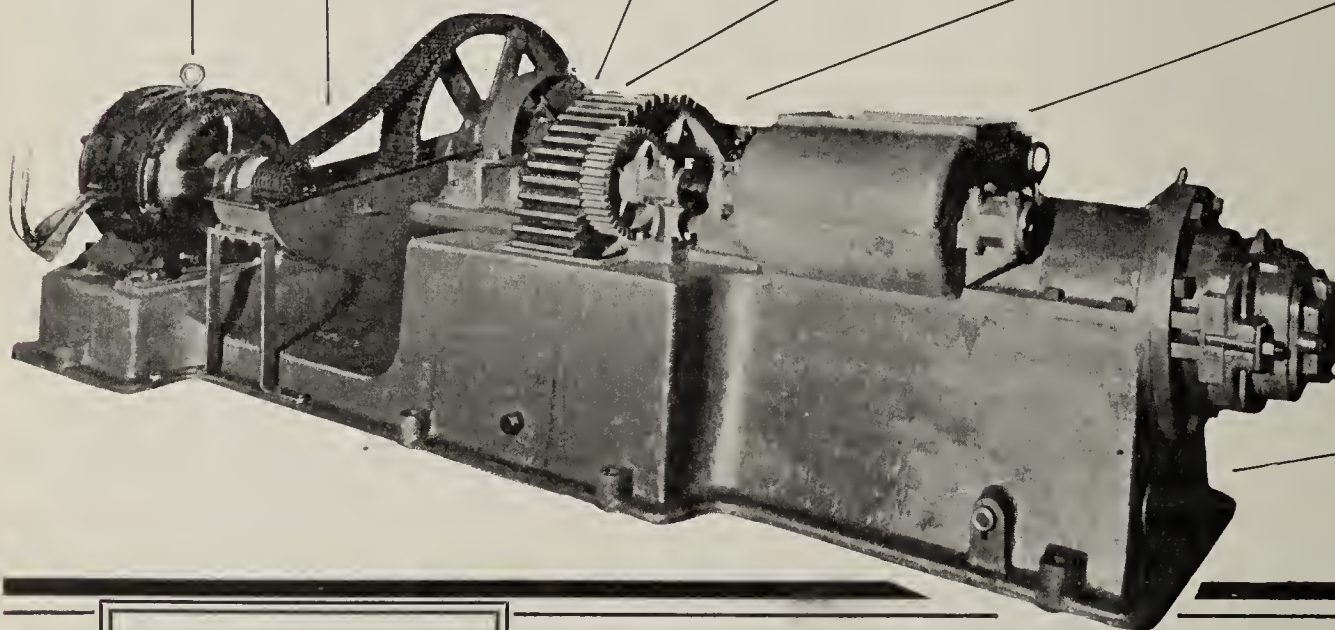
Ring oiling and extra good bab-bitt allow us to run International auger machines faster than machines with plain bearings.

Gears and Shafts

Machine cut cast steel pinions and semi-steel gears of special long life metal are used as a standard on all machines. The teeth are strong, yet so designed that at least two will always be in contact. All force feed gears are cut from blanks and have wide faces and strong teeth.

All gears, including force feed, run in a bath of oil with gear cover fitting snugly to the base of the machine. The oil reservoir is easily drained and replenished.

All main shafts are made of hammered high carbon steel.



Built with
manship
the pur
Running
the fron
These m
factory,
attached
Are we

Inter

NEW YORK

ENGINEERS
and
DESIGNERS
of
COMPLETE
CLAY PRODUCTS
PLANTS

International

NEW TRAIL MACHINE Manufacture

Thrusts

Machines have two thrusts on shaft, a marine and a floating either being large enough to thrust load of the machine. thus solve thrust difficulty by a one point adjustment. The thrust can be thrown from one to the other divided between the two. The THRUST is of the sleeve type with a shoulder on the shaft and with a feather key. THRUST is, we believe, the best for auger machines, and is covered by patent.

Force Feed

The machines are fitted with the single shaft type of force feed, using either knives with hard removable wearing plates or tool steel paddles, as the particular clay requires. The force feed is placed to the right or the left of the auger barrel, depending upon the direction of the turn of the auger required to meet the individual plant conditions. The force feed shaft is driven from the auger shaft by cut wide face gears running in oil.

Augers

A new era in auger mechanism opens with the design of free high pitched fast augers for these machines, based largely on the theory of the auger being made to fit the ware manufactured.

The use of liners in connection with International augers allows a quick change of the same machine from one sized auger tip to another for the manufacture of different kinds of clay products. International open, high-capacity augers are made either with chilled surfaces or of a hard tough mixture of steel, iron, and other components such as manganese, the exact auger composition depending upon the individual clay requirements.

Vibration

piece base, cut gears in oil, and excellent work—like a rock on its foundation, and all you hear is r.

speed, a pencil and coin standing on edge on machine has not fallen.

sembled with motor and chain complete in our foundations, slushed in, the wiring is machines are ready to make ware.

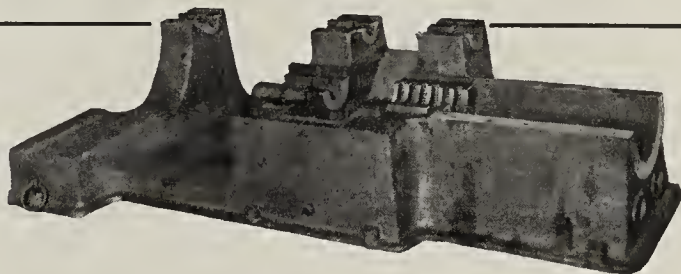
Blazing a New Trail”?

International Clay Machinery Co.
DAYTON, OHIO

TORONTO, CAN.

PITTSBURGH

Machines can be furnished for belt drive



BASE—Showing Extension for Motor

One Piece Base

The entire base of the machine is made in one piece — auger chamber, gear box, out-board bearing, motor base, all in one rigid casting.

This one casting contains all moving parts, shafts, gears, augers, chain drive and motor itself.

EQUIPMENT *for* MANUFACTURING CLAY PRODUCTS—POTTERY *and* GENERAL WARE

Accounting Simplified

G. W. Greenwood

Treasurer United Refractories Co., Dunbar, Pa.

CHAPTER VII—SALES RECORD

NO SINGLE METHOD of handling sales will meet the requirements of every company. The Operating Register, however, can be used in conjunction with any desired system of recording and entering sales. To demonstrate this it will be necessary first to describe a system and then to show how the sales so recorded reach the Accounts Receivable Ledger.

We are therefore choosing for illustration a method we believe to be fully in use only by the company for whom it was devised originally, but which may appeal generally on account of several novel features involved.

Plan Not Many Can Use

Note particularly that this plan will not suit many brick companies. But tho most readers will not be able to apply the method directly to their companies, it is used by a firm closely related to the brick industry, and one should hesitate before classifying his business as one to which the scheme is not applicable.

In the factory referred to, some of the sales are for cash; others are paid by check; still others are on account; and there are usually many of each every day.

In seeing how the Operating Register takes care of all these, we will get an idea as to the adaptability of this simple book.

Practice in One Factory

In this factory, sales are recorded as they are made, using a register which produces several copies. One carbon copy goes at once to the purchaser. In the case of charge sales, another carbon copy is signed by the purchaser. A third carbon is placed on a file in numerical order, which is also, of course, the chronological order. This file enables one to find any sale if the number or the date is known. The original record of the sale is placed on one of three files; one file for cash sales, another for sales paid by check, and a third for charge sales.

The cash sales are totaled daily and their sum charged to Cash and credited to Sales in the Operating Register. The total of the sales paid by check is credited to Sales and charged to the Bank. For reasons to appear later, it is well to indicate these two classes of sales by placing the letters "C" and "K" in the middle space in the pair of "SALES" columns. Nothing is done with the charge sales slips until the close of the month. Thus there will never be more than two entries daily to the credit of Sales in the Operating Register until the last day of the month.

At the end of the month, four adding machine lists are made; of the cash sales, of the check sales, of the charge sales, and finally of the numerical list, taking sub-totals of each at the close of each day.

Obviously, the cash and check sales taken together should equal the amount already credited to Sales in the Operating Register. If there is a discrepancy, run up the "C" and the "K" items separately and find whether it is the list of Cash sales or of Check sales with which the Operating Register fails to agree. When these two have been reconciled, the next step is to add to these two lists the sum of the charge sales, finding if the grand total is the same as the total of the numerical list. If there is a difference here, compare the total of the first three slips for the first day with the total of the first day's sales as shown by the fourth list. Compare these day by day until the difference has been found and rectified.

When the total sales for the month have been thus accounted for, we make one single entry in the Operating Register to cover the charge sales, charging Accounts Receivable and crediting Sales with the amount.

For instance, suppose that the totals of the four slips were as follows: Cash sales, \$3,000; check sales, \$6,000; charge sales, \$11,000; total sales, \$20,000.

Referring to the accompanying illustration (figures 8 and

March 1923 page 4

1923			General Ledger		Sales		Accounts Receivable	
			2500 00	2000 00		8000 00	7000 00	9500 00
Mar 29	Sales	Cash			C	200 00		
"	"	Check			K	400 00		
30	"	"			K	100 00		
31	"	Cash			C	300 00		
"	"	Charge				11000 00	11000 00	
Closing Entries:								
	Sales			20000 00	20000 00			
	Accts. Receivable		1700 00					1700 00
	Bank			500 00				
	Cash		1000 00					
	Accts. Payable		1000 00					
	Expenses		14500 00					

Figure 8.

9) we see that during the month of March, \$9,000 was credited to Sales and was accounted for, either thru the cash account or in bank deposits. This agrees with the total of the first and second slips. If there had been a difference, as a first step toward finding the discrepancy we would have run down the "SALES" column and taken separate totals of the "C" and of the "K" sales, thus finding which class of sales was "out."

When we have reconciled these amounts, we then turn to the charge slips, which total \$11,000. We enter this amount to the credit of Sales and debit Accounts Receivable.

We have now credited Sales with the total of the sales for the month, \$20,000, and when we make our closing entries this amount is transferred to the General Ledger to the credit of Sales.

Now just glance at what we have accomplished: We found that the total sales for the month, as shown by the numerical list, was \$20,000. Of this amount, \$3,000 was paid for in actual cash; \$6,000 by checks; and \$11,000 was bought on account. We find that the \$3,000 went into the cash drawer and is necessarily accounted for; \$6,000 went directly into the bank; and finally \$11,000 has been charged up against the Accounts Receivable Ledger and we eventually will get paid for these sales or will know the reason why not.

Making and verifying or reconciling these lists soon becomes automatic and is accomplished speedily. As yet, no invoices have been sent out for the month. It is true that a slip was given with each purchase, but these are not always kept or are not always turned in to the office of the purchaser by the man who receives the material and the slip. Also, in practically every instance the purchaser desires at the close of the month, a complete itemized list covering every purchase made during the month. This is accomplished as follows:

Take the file of original charge sales slips and assort them according to customers, and the customers in alphabetical order. Make for each customer a summary giving the date of each of his slips, the number, and the amount, thus:

Brixton Contracting Co. March 31, 1923.

Bought of Brixton Clay Products Co.

Material as per attached sales slips during the above month only, as follows:

March 1.....No. 1372	\$17.25
3.....1569	34.00
17.....2063	52.00
24.....2899	7.59
	\$110.84

When we have finished making these summaries, we take their total. In the present instance the total must equal \$11,000. If not, then there has probably been an error in copying or in totaling one of the summaries. In taking the total of these summaries, there is an advantage in sub-totaling after each letter of the alphabet. If the totals agree, staple to each summary the corresponding original sales slips and mail them to the customers.

Work Eliminated

Before adopting this system, it had been the practise of this company laboriously to copy these slips each month, making one large itemized invoice for each customer, which of course involved the re-writing of every charge slip, with every possibility of error. It can readily be seen that it would take considerably longer to copy the sales slip in full than to write down simply the serial number of it, the saving of work in this factory being measured each month, not merely in hours, but by days. In addition to this saving, it made it possible to get these invoices out promptly, and eliminate a fruitful source of error.

Distributing Material Costs

In some cases the purchaser is buying material to apply to several different contracts, and desires to keep track of each contract separately. This is easily accomplished by distributing his sales slips and giving him a summary for each contract. Here is a case in point: A contractor and builder in a city of fair size buys his hardware from one large store. At the close of each month he receives one lengthy itemized invoice covering all his purchases together with a notation as to the contracts to which they apply. But they are all on one invoice, in chronological order. The bookkeeper for the contractor states that he spends hours each month recapitulating these invoices. We have shown that it is possible to furnish the contractor invoices better suited to his requirements, and with less work on the part of the hardware merchant.

Monthly Summaries

As the monthly summaries are made out, a carbon copy is kept of each. After the originals have been mailed, post from the carbon copies directly to the customers' accounts in the Accounts Receivable Ledger. Post only the single total of each summary; except where a customer has desired separate summaries, this involves but one charge to the account of each active customer.

Let us see how this works out. Page 4 of the Operating

March 1923, page 4

Bank		Cash		Accounts Payable		Expenses	
12000.00	13000.00	7000.00	6500.00	9000.00	8000.00	15000.00	500.00
400.00		200.00					
100.00		300.00					
500.00			1000.00		1000.00		14500.00

Figure 9.

Register for March, as illustrated, shows at the top of the "ACCOUNTS RECEIVABLE" column debits of \$200 and credits amounting to \$9,500. The ledger was naturally in balance at the close of February; we have posted these debits and credits from the first three pages of the Operating Register. We have posted from these sales summaries, debits which we had already found to total \$11,000. We next post to the Accounts Receivable Control account a credit of \$1,700; we have therefore posted during March a total of \$11,200 to the debit and to the credit sides, so that the ledger should be in balance at the end of March. We have complete control over the posting of this ledger, as well as of the other ledgers.

Errors Easily Found

Suppose an invoice is called into question. The copy on file gives the numbers of the sales, and these are readily located in the file of sales in serial order, and the error, if an error has been made, corrected.

It may appear unusual to post a ledger from the carbon copies of sales summaries, but it has been shown how the ledger is controlled so that one cannot fail to post the sales accurately and get away with it. Later we will show how even the single letters of the alphabet are under control.

Many Advantages to System

But we have by no means exhausted the advantages which follow from this system. Suppose a customer purchases material on the first and the fifth of March; that on the tenth he pays for these two sales. These are at once removed from the charge file and placed on one of the other files, depending upon how payment was made. In other words, cash sales are sales for which payment was received in cash before the close of the current month; not necessarily sales which were paid for in cash immediately; and the same is true for check sales. Of course, this does not apply to sales made in a previous month. Once sales have been entered in the Accounts Receivable Ledger the only way to enter a payment is by crediting the customer's account. But the method outlined eliminates the charging of sales only to neutralize the charge before the close of the month.

Illustrating Advantages

Let us give another illustration to emphasize the advantages of this. This illustration, like others used in this series, is from a large well rated firm; a firm with branches in different cities; one with every accounting facility and mechanical device. Some merchandise was purchased on which there was a discount for immediate cash payment. It was delivered, accompanied by a sales slip showing the amount of the sale and the discount for cash which it was known the purchaser intended to take advantage of. Payment was in the hands of the firm within an hour after the goods left the store. Now if cash had been handed in before the slip had been made out; it would have been handled as a cash sale. But the sales slip had been made out; the die was cast;

The Moving Finger writes; and, having writ,
Moves on; nor all your piety nor wit
Shall lure it back to cancel half a line,
Nor all your tears wash out a word of it.

At the close of the month, sandwiched between other purchases, was an itemized list of these goods, followed by a credit for cash and discount, the balance being taken up by the accounting machine and raised, lowered, and set down again as it was before. An amusing feature of the case was the claim of the manager that their accounting department would not commit such an absurdity. On another occasion the manager was asked if they ever had any difficulty reconciling their Accounts Receivable Ledger with their charge slips. He stated that they were out a few dollars the previous

month and that it had taken two or three days to find the mistake. It should not have taken an hour.

Feature Not New

We know that there are large companies which make out at one operation bills of lading, shipping notices, and copies which with prices later inserted serve as invoices and office records, so that this feature of the method above described is far from being new.

But where the system as outlined can be used in its entirety, and there are many lines of business in which this is true, it has the following advantages:

It insures accounting for all the sales, however classified.

It avoids charging in the Accounts Receivable Ledger any sales except those which were unpaid during the month, reducing the number of postings.

It further minimizes posting by combining as far as possible the sales of each customer. This also reduces the work of taking off a trial balance.

It posts from original sources, except for this combination of each customer's sales, direct to the Accounts Receivable Ledger: a saving of the time which some spend in transferring sales to an intermediate sales book or journal.

It enables one to locate any sales slip, either by date, number, or name of the purchaser.

It affords thru the Operating Register a most simple control over these Accounts Receivable.

Another Method

In contrast with the system above outlined, consider the following method at present in use by another company:

Sales are made out on the same kind of a register as used in the previous instance, but the charge slips are all copied in detail into a book and at the close of the month an itemized invoice is made out from this book for each purchaser. Thus each charge is entered three separate times. The writer does not know what plan, if any, is used to prevent errors in copying these slips.

When All Sales Are Charge

Next, let us consider a case in which all sales are charge sales, none of them being paid in the month in which the material was received.

Assume as before that the total sales for the month amount to \$20,000. These are either written up in a Sales Book, or are made out on loose-leaf records. In the latter case, the loose sheets must, of course, be serially numbered to guard against loss. Prices are inserted and the amount of each sale is calculated. When a total of the sales is made from these original sources, it amounts, as we have assumed, to \$20,000. We charge this amount on the last day of the month to Accounts Receivable and credit Sales. When we make the closing entries in the Operating Register, we transfer this from the "SALES" columns to the "GENERAL LEDGER" columns. Thus here are but two, counter-balancing entries in the "SALES" columns, thus:

	GENERAL LEDGER		SALES		ACCOUNTS RECEIVABLE	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Acts. Receivable (or Sales).....				20 000	20 000	
Closing Entries: Sales.....		20 000	20 000			

We are here omitting the "key" spaces between the debit and credit columns, which of course are contained in the Operating Register.

We can readily see that we will get the same result, with the same amount of postings, but with a less number of Operating Register entries, if we make the final entry covering the charge sales thus:

	GENERAL LEDGER				ACCOUNTS RECEIVABLE	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Sales.....	20 000..	.....	.....	20 000	.....

Thus we see that if all sales are charge sales, as in many brick plants they are, we do not need the pair of "SALES" columns. In fact, we are better off without them.

Or, if only a few sales are paid during the month, we may still omit this pair of columns if we so desire. For instance, suppose we have one sale for \$500 paid by check, the remaining \$19,500 being charge sales. We may make the credits to Sales right in the "GENERAL LEDGER" columns, thus:

	GENERAL LEDGER		BANK		ACCOUNTS RECEIVABLE	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Sales	500	500	.....	.....	.....
Sales.....	19 500..	.....	.....	19 500	.....

We see that each such entry requires an extra posting to the Sales account in the General Ledger. If there were a score of such sales each month in addition to the charge sales, one would have to choose between making a dozen extra

Author's Note.—Possibly on account of the standpoint from which these chapters are written, it has been assumed by some readers that the system described will work to advantage only in small factories or plants.

As a matter of fact, these articles are intentionally written with the smaller factory in mind, with occasional excursions into the field occupied by large organizations. When one looks at the display in a photographer's studio, he does not assume, because the examples on exhibition show only groups as high as five, that he cannot portray equally well a family of twelve.

The writer does not know of a case in which the use of the Operating Register, supplemented by other records perhaps, will not result in a reduction of the work required by other methods in use.

We should not lose sight of the fact that the system described is not a collection of stock forms. Each application is molded to meet individual requirements.

postings each month to the Sales account and combining all credits to Sales into one total by means of the "SALES" column.

Postings Can Be Made at Will

In any case, the individual charges to the Accounts Receivable are made from the original sales records, or from the copies of invoices to customers, either by posting each sale separately, in which case postings to the Accounts Receivable ledger can be made daily or at frequent intervals, or posting each customer's account in one item by combining all his sales.

In some cases charges are made directly from carbon copies of invoices rendered customers, in which case one should, one

MUST have some independent method of arriving at the total sales. He must not make his Operating Register entry from a total obtained by summing up the copies of invoices.

Accident Reveals Error

In one instance where this method was used an error of over a hundred dollars was discovered merely by accident, a few months later. It should be unnecessary to state that this firm was not then using the methods herein described.

As we have already pointed out, if we make a mistake in posting charge sales and fail to charge exactly \$20,000 in the first instance, or exactly \$19,500 in the second instance, the Accounts Receivable Ledger will not balance.

No Balance if There Is an Error

Having posted the charges direct from some record of charge sales, we post all other entries to the Accounts Receivable Ledger from the "ACCOUNTS RECEIVABLE" columns of the Operating Register, knowing that, except in the rather rare case where two errors cancel each other, the Accounts Receivable Ledger will not balance if there had been an error made in posting or in adding an account. Of course one may post a sale to the wrong account without being aware of it, so far as this check is concerned.

In later chapters we will discuss the omission of other columns from the Operating Register, as well as the insertion of columns to meet other requirements sometimes encountered.

Doing Without Accounts Receivable Ledger

But while we are considering the question of handling Sales, we will digress in the next chapter by explaining how one may do away entirely with the Accounts Receivable Ledger.

If all sales are for Cash, or are paid by check, then it is practically necessary to carry this pair of "SALES" columns in the Operating Register.



NEW BOOK ON CONVEYORS AND ELEVATORS

The increasing use of belt conveyors and belt elevators has prompted Frederic V. Hetzel, a member of both the American Society of Mechanical Engineers and the Franklin Institute of Pennsylvania to present a volume on the subject.

The book is the result of the author's 30 years' experience at the drafting board, in the shop, and in the field supervising the erection and operation of the machinery. A large part of the book, therefore, has never before appeared in print.

This book is especially serviceable to clay products manufacturers at this time because the increasing scarcity of labor and higher rate of pay, makes it imperative that every possible labor saving equipment be installed.

The chapters that will be found most instructive concerning conveyors in this industry are those that treat of Supporting and Guiding the Belt; Driving the Belt; Tension and Take-up Devices; Loading the Belt; Discharging from the Belt; Protecting and Cleaning the Belt; Special Uses of Belt Conveyors; Life of Belts; and When to Use Belt Conveyors.

The most instructive chapters under the elevator section are Centrifugal Discharge Elevators; Elevator Buckets; Continuous Bucket Elevators; Belts for Elevators; Fastening Buckets to Belts; Driving Belt Elevators; Elevator Boots; Inclined Elevators; and Elevator Casings.

The book goes into the detail of every point very thoroly. In all it covers 320 pages and includes 291 illustrations and 58 tables. These tables give every kind of information of a statistical nature that is met in the design, construction or operation of belt conveyors or elevators.

The book can be obtained from publishers, John Wiley & Sons, Inc. of New York, or from the book department of Brick and Clay Record, at the regular price of \$5.

REFRACTORIES FOR METALLURGISTS

The metallurgical field is constantly demanding a refractory material which will stand up under more severe heat conditions, states the Bureau of Mines. There are many other demands on a refractory for specific utilization, but it must be primarily a material with a high softening point. The refractory further must not vary widely in acidity or basicity from the slag with which it comes in contact.

With these considerations together with that of economy in view, it is apparent that there are only a very few materials available for the purpose. It is proposed by the Bureau of Mines, therefore, to start work on the system $ZrO_2-Al_2O_3-SiO_2$ with the object in view of obtaining fundamental data in regard to refractories, abrasives and quartz glass. The purification of the ZrO_2 has already been completed. An induction furnace in which temperatures up to 3,000 deg. C. can be attained is being installed for this and similar work at the ceramic experiment station at Columbus, Ohio.

* * *

RESEARCH IN BURNING REFRACTORIES

An agreement has been made between the United States Bureau of Mines and the Refractories Manufacturers' Association for the utilization of the laboratory car "Holmes" and crew for an investigation of fuel-burning equipment at refractories plants in the central district, with a view to determining wherein changes in equipment or practice will result in decreasing fuel consumption and increasing the output of fired ware.

As planned at present, the crew will investigate the burning conditions at seven plants, including those manufacturing chrome, silica, magnesite, and fire-clay wares. The burning conditions on round, square and rectangular down-draft kilns will be investigated.

* * *

NATIONAL CHAMBER TO MEET IN MAY

It is announced that the Eleventh Annual Meeting of the Chamber of Commerce of the United States will be held in New York City, May 7 to 10 inclusive. The mornings of May 8, 9 and 10 and the afternoon of May 10 will be devoted to general sessions at which time the subject "Transportation in All Its Phases in the United States," will be discussed. The evening of May 8 will be spent reviewing the European conditions from the American viewpoint; afternoon of May 8, there will be group meetings on Civic Development, Domestic Distribution, Fabricated Production and Finance; afternoon of May 9, group meetings will hold interesting discussions on Foreign Commerce, Insurance Natural Resources Production, and Transportation and Communication.

* * *

WORK ON SPECIAL REFRACTORIES

In a general study of electric furnace refractories, being made by the Ceramic Experiment Station of the United States Bureau of Mines, Columbus, Ohio, conductivity tests are to be made of alundum, carborundum, sillimanite, spinel, silica, and magnesite.



Business Will Be Good Say Iowa Manufacturers

BUSINESS IN IOWA and neighboring states west of the Mississippi will be very good in 1923 and the wave of prosperity which is now passing over the country east of the Mississippi is surely coming west. This was practically the unanimous opinion of about 30 Iowa clay products manufacturers who met in convention February 15 at Des Moines. If the most optimistic statements are to be believed, the factor of competition will not enter into the situation at all during this coming year; but rather it will be a question of delivering the materials. This is good news to Iowa manufacturers, especially those in some sections where conscienceless manufacturers have been selling at ridiculously low prices.

Dealers More Favorable to Clay Men

The question of dealer distribution came up for discussion and C. B. Platt, Van Meter, Ia., the secretary, told of his experiences at a meeting of lumber dealers at Creston, Ia., a few days before. He said that as a result of some talking which was done at the dealer meeting by several clay products manufacturers, the dealers are now more favorably disposed to the clay products manufacturer and to the handling of clay products. The shortage of lumber, Mr. Platt said, which is becoming more and more evident, is also causing the dealers to revert to clay products.

E. C. Bacon, representative of the Hollow Building Tile Association, stated that in his travels he found that architects and engineers were more and more inclined to accept the association's specifications in regard to hollow tile as standard. It was thought by some that the labor situation might affect good business in 1923. At present, most plants have a sufficient supply of labor and are paying from 30 to 35 cents per hour and sometimes adding a bonus to this.

A banquet was held at the Hotel Savery at 6:30 at which R. M. Holbrook of Ames College gave a talk on Iowa and

for two hours sought to convince his hearers that it was the greatest state in the Union. He fairly buried his audience under statistics among which was the rather startling statement that Iowa produced 19,000 miles of tile annually.

U. S. Senator, Charles Rawson, an Iowa clay products manufacturer, also addressed the convention.



Some Iowa Manufacturers at the Des Moines Convention.

The officers elected for the ensuing year were Carl Reaver, Eldora Clay Products Co., president; W. A. Quale, Redfield Brick & Tile Co., vice-president; H. R. Straight, Adel Clay Products Co., treasurer; and M. T. Straight of Adel, secretary. At his own request, C. B. Platt, who has been the association's secretary for many years, was relieved of his duties.

FAR REACHING EFFECT OF BRICK PROPAGANDA

That brick may yet rank first as the accepted building material for housing construction, and this at none too distant a date, is the belief of officials of the Common Brick Manufacturers' Association of America, Cleveland, Ohio, following the tremendous returns from the propaganda that recently was instituted in national class publications.

This propaganda has offered to the consuming public the books published by the association on Brick for the Average Man's Home and the illustrated pamphlet that shows several score designs of brick house construction and floor plans.

Within the week following the publication of this offer, according to Charles A. Bowen, assistant to the president, thousands of inquiries have been received, accompanied by the nominal fee that is charged for these books. In many instances, according to Mr. Bowen, these inquiries are accompanied with instructions to speed the delivery of the books, since writers want to use the ideas in their spring building programs.

Importance of the work is reaching into Canada also, as a large number of inquiries have come from residents in the Dominion.

This instance serves as a link that eventually will bring the Canadian brick manufacturers and those of the United States closer together, Mr. Bowen believes. In special meetings arranged by Canadian brick manufacturers, Mr. Bowen will address producers in the Dominion early in March at Montreal, Toronto and Hamilton.

This move also is the outgrowth of information distributed at the convention of the Canadian National Clay Products' Association and the Western Ontario Clay Workers' Association, held at Hamilton recently. The Canadian manufacturers were inspired by the number of inquiries for the books mentioned, which were received by the association from Canadians. As a result of this showing the separate meetings for early in March were arranged.

While the Canadian manufacturers will continue to benefit by what they have learned from the work of the Common Brick Manufacturers' Association, it is the belief of Mr. Bowen that as a result of the meetings yet to be held about 100 Canadian producers will join the Common Brick Manufacturers' Association.

As soon as the March meetings are held, plans for formation of several local organizations of common brick manufacturers will be taken up by the executives of the association.

**The Building Situation**

JANUARY CONSTRUCTION ACTIVITY was 31 per cent. greater than it was in the corresponding month of last year, according to the F. W. Dodge Co. Total contracts awarded last month in the 36 eastern states of the country (including about seven-eighths of the total construction volume) amounted to \$242,755,000. The record on 27 of these states showed increases of one per cent. over December, and of 31 per cent. over January, 1922.

Residential construction constituted 51 per cent. of the January total, amounting to \$122,695,000, an unusually high figure for this time of the year. Second in importance were business buildings, amounting to \$36,332,000, which was 15 per cent. of the total. Other important items were: \$28,642,000, or 12 per cent., for public works and utilities; \$23,152,000, or 10 per cent., for industrial buildings; and \$16,862,000, or seven per cent., for educational buildings.

Contemplated new work reported in January amounted to \$813,280,000, which was more than three times the amount of work started during the month. The enormous volume of contemplated work reported in December and January seems to indicate a heavy volume of activity in the coming spring months.

January construction operations in the New England district show a little decline, as compared with the averages for the preceding month, due to the advent of exceptionally severe winter weather. Contracts are being awarded and piling up awaiting a start, the weekly aggregate now exceeding \$3,000,000; this time a year ago awards were being made at the rate of about \$3,500,000 per week.

The value of building permits in Massachusetts during December, taking the record of 35 leading cities, totaled \$5,949,000, and January operations are closely paralleling this figure, or a gain of approximately 20 per cent. over the record of the same month of a year ago.

New York

Speculative building is destined to be an important feature of operations at New York during the coming spring if plans now out for estimates are any indication of what is before the local industry. Weekly contract awards are now averaging from \$8,000,000 to \$10,000,000 for all classes of operations.

Since the first of the year there has been marked improvement in the labor situation in New York, and local builders and contractors are now going ahead on the basis that there will be no disturbance or tie-up during the coming year. Agreements have been made with about one-half of the important branches of the building crafts, and in the majority of cases 1922 wage levels are to be maintained thruout 1923, carrying a \$9 and \$10 a day rate. Good labor in practically all classes of construction is now available, with the possible exception of plasterers. Common labor is harder to secure at the moment.

With the Hudson River gradually closing to traffic and frozen solid north of the Haverstraw district, New York must now depend upon its reserve brick supply for a number of weeks to come. The arrivals are shrinking to a nominal few, the last week in January showing but three bargeloads docking; for the next month or more, only cargoes from the extreme lower end of the brick manufacturing district will be able to get thru the congested ice. The advancing winter season brings a decided firmness to the \$20 a thousand wholesale level now prevailing and it is quite certain that this figure will not recede before spring. More than 50 per cent. of the common brick now being sold in the local market is finding its way to Brooklyn.

New Jersey

Advance reports for spring construction in important New Jersey cities indicate a volume of work that will compare favorably, if not exceed, the figures for the same time in 1922. Newark, Camden, Trenton, Jersey City, Atlantic City and Paterson are but a few of the municipalities that forecast \$15,000,000 to \$20,000,000 in new buildings in the spring and summer months.

Present operations at Newark are ranging from \$300,000 to \$325,000 in valuation of permits issued, with three and four story brick apartments and small brick industrial buildings taking the lead among all classes of work.

Philadelphia

Brick construction continues at Philadelphia and the month of January will close with a record estimated in excess of

(Now turn to page 356)

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

ARCHITECTURAL USE OF COLOR

"IN REGARD to polychromy, which means many colors, there are definite objections to the use of many colors upon the exterior of buildings for several reasons.

"First—A building is an entity, a complete and adequate organism, and its expression should be one of unity. Factors therefore which would tend to minimize this expression by introducing a confusion of statement are inadvisable.

"Such confusion would occur from the introduction of many colors, unless there were a marked domination of one color. Therefore a general tone and a dominant color serve best to give harmony to the general effect. The introduction of polychromy, i. e. many colors, should be minor and accessory and devoted to intimate details which should accent but not disturb the general effect.

Ancient Use of Color

"Polychromy in ancient times either literally or symbolically told the story of the land upon a white background, which became almost a necessity, for it was always related to religious buildings and expressive of the highest ideals of the people, and the tradition was maintained and extended to Phoenicia and to Crete, where it met the work of Mesopotamia and was carried to Greece.

"The most beautiful buildings were white and their colors were purer and clearer and perceptible at a greater distance than were other combinations of color. The clarity was very marked, but the pigments were permanent only in lands where rain was rare.

"Herodotus and Theodoros both give accounts of the glazes of Central Asia. Even in their time it was considered probable that the knowledge of these glazes had come from farther East, and it was generally assumed that they were from China.

Glazes Used to Protect Brick

"In any event, it was necessary to protect the sunburned brick of which the terraces and buildings of Babylon and Nineveh were carefully laid, for with the occasional great rains and the inundations they were washed into masses of clay.

"Xenophon in his march of the 10,000 camped upon the site of Nineveh without knowing it, and the Romans had a military camp extending within its walls and were ignorant of its existence tho much has been discovered by modern

excavation. Therefore all Mesopotamia began to protect its mud brick by glazes, of many colors.

"The towers known as Ziggurats upon which were elevated the sacrificial altars, were built terrace upon terrace, each of the symbolic color of one of the planets, white, blue, yellow, green and black.

"The brick were thin so that they were readily burned thruout and were large, often two feet square, and were protected by colored glazes.

Colors Were Kept Apart

"Skill in line drawing was considered a high art in olden days, there was no affection for the so-called lost line and the results are a lesson to those who appreciate a beautiful line confining the color within it which was laid in by the painter. This decision of line and clear definition of areas of color is to be found in the work of the Building Material Exhibit. It is the occasion for the little raised dikes to be found in the tiles, to hold and retain glazes which when fired upon plain surfaces would run into each other. All Mohammedan work shows extreme care in regard to the isolation of colored glazes, for if glazes fused together, the work was considered ill done.

Roman Polychromy

"The polychromy of the Romans was obtained in their monumental buildings by colored marbles, and by colored glass in the pierced stone grills of the window openings in the baths, which shone like jewels. Then there came a new art from the East, the mosaics of Byzantium, with gold, and blue and sea green grounds. There had long been mosaics of colored pebbles such as those of the temple floor at Assos, and of the marble tesserae of Roman buildings, but they had been comparatively devoid of color and had not ascended upon the walls. The wall mosaics, at first the mere salvage of precious broken Persian tiles, were found capable of covering curved surfaces, vaults and domes, which tiles were not, and the mosaics were put together of small pieces of the most beautifully colored fragments of stone and of glass which otherwise would have served no purpose.

Terra-Cotta Comes into Vogue

"The tendency of medieval and Gothic detail was towards naturalism and colors had the local color of the objects carved, often therefore adjacent colors had similar tones, which were separated from each other by gold in lines or in patterns, and by white. Clarity of effect, always essential, was thus obtained.

"It was at this time that colored terra-cotta was adopted in Italy, as much more permanent and more brilliant than pigment, and it has been used with admirable effect ever since. In this the common sense tradition of separating similar tones of color from each other by white or light tone still occurred. Sharp contrasts of tone gave definition of delicate detail which otherwise would have been lost.

Use Tile to Produce Color Effects

"The Mohammedans seem to have thoroly comprehended that tile was not a constructive form of material, but that

Editor's Note—This article is composed of excerpts from a paper entitled "Architectural Polychromy" which was read by C. Howard Walker on the occasion of the opening of the tile exhibition in Chicago, Ill. The paper was distributed thru the courtesy of the Associated Tile Manufacturers.

it was a wall covering, and their tiles were cut to the shapes of their patterns, as if they were a large-scaled mosaic.

"Each unit had its own color and colors of similar tone were separated by ribbons of white.

"There was in the past therefore no apparent theory of color combinations, the principal desire seems to have been to have the colors clear and intense, unconfused with adjacent colors and therefore separated from them. Few neutralized colors occur, and naturalistic color often affects the choice of color.

"It is reserved for modern research to evolve theories of color. Into any manifestation of nature and of man's accomplishments, can be read a systematic order, for order underlies all successful work, and the desire for it induces theories in regard to it.

The Theory of Colors

"But certain physical facts, which are undoubted are worth consideration. The theory is simple, in fact it is not a theory, but a fact. By a prism white light can be resolved into the rainbow, that is the prismatic spectrum. Of the consecutive colors in this spectrum, three, the so-called primaries red, blue and yellow, are integral. The intermediate colors are from combinations of the primaries those resulting from the mixture of two of the primaries being the secondaries, violet, green and orange. The prismatic colors are of full intensity, unneutralized. As white light subdivides into the primaries and their combinations, a mixture of all three of the primaries creates no color, neutrality, and the combination of a primary and its complementary secondary, i. e. the color made from the two remaining primaries, creates no color, that is, a primary and its complementary cancel each other.

How to Blend Colors

"Each pair, red and green—blue and orange—yellow and violet—cancel each other, annihilate each other. The best graphical statement of this fact is made by the circular prismatic spectrum, in which each color has, directly opposite to it in the circumference of the circle, its cancelling color. It is obvious that cancellation is accompanied by conflict, and conflict in color combinations is undesirable, except when violent sensation is desired. It is equally obvious that there will be no conflict if the use of complementaries is avoided; and it tends strongly to cause an effect of harmony if one color and its immediate changes into the adjacent colors in the spectrum is made the dominant of the color scheme. The use of any third of the circular spectrum is therefore perfectly safe, and contrasts are obtained by the introduction of small areas of the colors in the other two thirds of the spectrum."

* * *

MESA COMPANY TO BE SOLD

The plant and property of the Fernando C. Mesa Co., Chancellor Avenue and Coit Street, Irvington, Newark, N. J., manufacturer of electrical porcelain products, has been closed and will be sold by the receivers, Edward J. Gilhooly and Frederick W. Schmidt, a report states. It consists of a tract of land of more than eight acres, with plant fully equipped with machinery, tools, dies, and so on.

* * *

LENOX TO OPERATE OPEN SHOP

Owing to labor difficulties brought about by the recent strike in the general ware branch of the pottery industry, Lenox, Inc., Trenton, N. J., has decided to operate its plant on an "open shop" basis, and has withdrawn from membership in the United States Potters' Association, thru inability to enter into the agreement with pottery operatives which

terminated the strike. In an explanation of the action, the company sets forth that it is in an entirely different position from the manufacturers of other general ware. On account of the high quality of production, exceptionally skilled men must be employed and these workers receive a higher scale of wages than the operatives in the average general ware plant. The men, it is explained, must receive suitable compensation for their expert knowledge and handicraft, and these wages cannot be fixed on the schedules approved by organized labor. This situation has brought about the decision to engage on the "open shop" plan.

* * *

TO FIRE KILNS WITH OIL

Stockholders of the Smith-Phillips China Co., meeting at East Liverpool, Ohio, recently elected the following officers:

President, V. Q. Hickman, Pittsburgh, Pa.; vice-president, Mrs. B. W. Robinson, Akron; secretary-treasurer, Paul V. Robinson; general manager, H. Dan Smith. These officers with William H. Phillips compose the board of directors. The sales department will continue under the management of William J. Mackey.

During the past year the company made a number of improvements to its plant and other extensions are planned. Kilns are to be equipped with oil firing accessories and a new drying mangle is now in operation. New plunger mills and agitators have been installed. Because of the heavy volume of business already booked, the company believes 1923 will prove one of the best years in its history.

The Robinsons connected with the local venture are identified with the Robinson Clay Products Co. of Akron.

* * *

WILL REBUILD PLANT

The Southern Crockery Co., Richmond, Va., plans for the immediate rebuilding of the portion of its plant, destroyed by fire, October 29, with loss estimated at \$25,000. F. F. Socoloff is president of the company.

* * *

TALKS ON "EARLY POTTERY"

A. M. Maddock, an official of the Thomas Maddock's Sons Co., Trenton, N. J., manufacturer of sanitary ware, gave an interesting address on the subject of "Early Pottery and Its Development," before a gathering of the Men's Association of the First Presbyterian Church, Trenton, on January 15.

* * *

POTTERY COMPANY FOR CINCINNATI

The Cincinnati (Ohio) Porcelain Co. has been organized under state laws, with capital of \$30,000, to manufacture porcelain products. The company is headed by Frank W. Inwall and Charles F. Schildmeyer, both of Cincinnati.

* * *

PETER D. THROPP PASSES AWAY

Peter D. Thropp, Trenton, N. J., a leading manufacturer of the city and head of the Eureka Flint & Spar Co., died recently at his residence on West State Street. He and his brothers have been active in a number of local industries.

* * *

FORM TILE COMPANY FOR \$100,000

L. Del Turco & Brothers, Inc., Newark, N. J., has been incorporated under state laws, with a capital of \$100,000, to manufacture ceramic tiles, a report states. The company is headed by Louis and Peter Del Turco. It is represented by Toby Furst, 164 Market Street, Newark.

GRAACK POTTERY SELLS ENTIRE OUTPUT

The Graack Pottery, Bradentown, Fla., has contracted with the Manufacturers' Jewelry & Export Co., New York City, to supply that concern with the entire output of its plant. Mr. Hills, president and general manager of the Manufacturers' Jewelry & Export Co., is very much interested in the quality of the ware since it is of a superior grade for pottery manufacture. Each piece of ware is stamped with "Bradentown" which is advertising in itself for the Bradentown plant.

* * *

POPLAR BLUFF MINE OPENING

The Poplar Bluff (Mo.) Clay Co. has announced that the Butler County china clay mines will be reopened at once. Little of the china clay has been shipped recently because of the strike of the pottery workers. Butler County clay, which was discovered a year ago by G. E. Doane, is said to possess all of the qualities necessary to produce first-class chinaware. Previously two grades of china clay were mixed in order to provide the proper quality.

* * *

TO BUILD NEW PLANT AT KNOXVILLE

J. N. House has been elected president of the Knox Porcelain Co., which has been formed at Knoxville, Tenn., to manufacture electric porcelain specialties. The company was chartered with a capital stock of \$370,000. It is proposed to build one unit of the plant at once, and a little later add two additional units. A building site of 5½ acres has been obtained for this extension. The plant will be the largest of its kind operating south of the Ohio river.

* * *

INCREASES CAPITAL STOCK

The National Helfrich Potteries Co., of Evansville, Ind., has increased its capital stock from \$200,000 to \$250,000.

* * *

HENRY CLEWS PASSED AWAY

Henry Clews, the youngest son of James Clews, manufacturer of the famous "Clews pottery," internationally known banker and for the past 45 years president of the Henry Clews & Co., Bankers, N. Y., died at his home, January 30, after several months' illness of bronchitis. He lived to the ripe old age of 83 years and had spent 65 years of his life in the banking business.

* * *

TWO LUSTRE VASES BRING \$380

Henry Symons collection sale of decorated coffers, needle work, pictures, porcelains and potteries at the Anderson Galleries, N. Y., included two rare purple lustre vases with covers which sold for \$380.

* * *

FRANCE BURNS POTTERY KILN WITH OIL

An innovation has been introduced at the celebrated porcelain factory of Sevres, France, in the successful result of trials of heavy oil, instead of wood, in the burning process. The cost comes to about the same as in the use of wood but the regulation of the firing is improved.

* * *

ALLIANCE GETS NEW CHINA PLANT

Announcement is made of the erection at Alliance, Ohio, of a plant by the Manufacturers Sales Co., which has been incorporated for \$100,000 and which will engage in the manufacture of decorated dinnerware. A one-story brick building

occupying a site 85x200 feet will be erected at once. It is planned to provide two modern decorating kilns in the new plant with provision for four to six additional kilns when the growth of the concern warrants.

It is also planned to have the new plant ready for actual production by January 15. At the start more than 100 persons will be employed. L. C. Cook, owner and manager of the Manufacturers Sales Co., and Charles B. Smith of Sebring, Ohio, are interested in the new plant.

* * *

KIRK BUYS FLORENTINE POTTERY

George Kirk of New Castle, Pa., has purchased the plant of the Florentine Pottery Co. from the Pfau Manufacturing Co., of Cincinnati for \$73,000. The Pfau Manufacturing Co. was recently adjudged bankrupt and the property ordered sold. Kirk plans to reopen the plant and begin operations about January 1.

* * *

TO BUILD BATTERY AT BESSEMER, ALA.

J. H. Glover of Spruce Pine, Ala., who recently visited Bessemer, Ala., was so favorably impressed with that city as a good location for a pottery plant that he is contemplating constructing such a plant there, it is said. He, in company with the secretary of the chamber of commerce visited various parts of the district and took samples of the clay for testing purposes. If the clay does not give satisfactory results, Mr. Glover will have his raw material shipped in for his future plant.

* * *

TERRA COTTA EMPLOYEES HOLD BANQUET

The second annual banquet of the executive force of the Atlantic Terra Cotta Co., Plant No. 2, Perth Amboy, N. J., was held on January 11, with C. W. Hill, general works manager, acting as toastmaster. After an enjoyable repast remarks were made to those assembled by Mr. Hill, P. D. Buchanan, C. Fidler, S. R. Audsley, W. S. Norton, A. Sokolonski, E. L. Anderson and W. M. Hallahan. The affair was carried out under the direction of a committee composed of Mr. Hallahan, chairman; H. D. Meshrow, G. E. Jaycox and H. Peterson.

* * *

POTTERS BUILDING NEW TUNNEL KILNS

The A. E. Hull Pottery Co., of Crooksville, Ohio, has just contracted with Carl B. Harrop for a car tunnel kiln for the firing of whiteware, stoneware and earthenware. Work on this kiln will begin in January.

Mr. Harrop not long ago built his second tunnel kiln for the American Encaustic Tiling Co., of Zanesville, Ohio.

* * *

SHOW POSSIBILITIES OF FAIENCE

A booklet has recently been published by the Wheatley Pottery Co., Cincinnati, U. S. A., illustrating the use of architectural faience in modern building. Beautiful designs in floorwork and panel work are illustrated in color to show the wide range of possibilities of faience tile.

* * *

FINE CLAYS AT CHATTANOOGA

Rumors, which are current at Chattanooga, Tenn., say that that city may soon boast of a pottery plant. Tests of deposits of clay located there seem to indicate that the possibilities for its manufacture into high-grade earthenware products are great. A carload of the clay was shipped to England and there tested by a famous pottery manufacturer who reported favorably on the quality.

Management and Superintendence

ROLLER BEARINGS REDUCE WEAR

A constant source of trouble, delay and cost has been avoided at one large plant. In past years the heavy duty required of the wet pans caused excessive repairs in the hubs of the mullers. Every type of metal was tried, but in every case the motion of the pan caused the hubs to wear so that the tops of the mullers sooner or later would incline towards the center shaft. From the very start of this wear the production of the pan was reduced because the mullers would not have full bearing on the muller plates.

The entire trouble was due to the fact that no grease or oil for lubrication could be kept in the tub. Without lubrication, it was easy for any metal to be worn out.

Six years ago the master mechanic of the plant started installing roller bearings in the hubs, and they are still in use. These rollers are made of three-quarter inch cold rolled steel of the same length as the hub is wide. The rollers are fastened on each end thru holes in a flange or ring, like any roller bearing.

The advantage gained by the use of the rollers is that they enable grease for lubrication to be kept in the hub. The sufficiency of the lubrication prevents the excessive wear; in fact, reduces it to an ordinary amount.

The use of these roller bearings has practically eliminated repairs on the pan hubs.

A GOOD RAW MATERIAL STORAGE

A very efficient raw material storage system has been installed at a large refractory plant in the Middle West. At the level of the top of the elevator, this plant has constructed the conveyor shown in the illustrations, which extends several hundred feet in a direction at right angles to the building.



Exterior View of Storage System Showing Housing for Upper Conveyor. Near the Lower Right Hand Corner Next to the Railroad Car Can Be Seen Part of the Concrete Which Encloses the Reclaiming Conveyor.

The housing contains a belt 36 inches wide and 360 feet long, that is 180 feet center to center of shafts.

The material is received at the plant in drop bottom cars and dumped so as to pass to a feeder. An elevator then raises it to the level of this conveyor and dumps it either into the bins above the wet pans or for storage onto this conveyor. The conveyor is equipped with an automatic tripper as illustrated, so that the ground material can be unloaded at many points thru holes in the floor of the housing, when the storage bins are full.

A similar conveyor, of the same size, is encased in con-

crete, beneath the ground level. Small hoppers or gates are built into the concrete in order to feed the raw material onto this conveyor, which carries the material to the elevator boot. From this point it is raised and dumped into the bins above the wet pans. It is estimated that this storage will hold



Interior of the Upper Conveyor Housing. The Reclaiming Conveyor Is Practically the Same, but Runs So Accurately That No Guide Rollers Are Used, Altho the Distance from Center to Center Is 180 Feet.

30,000 tons of material, or enough for more than four months' operation at full capacity.

The material can be stored or reclaimed practically without cost except for supervision.

COUNT OF DRYER CARS MADE ACCURATE

The use of rack cars on which to place special refractory shapes of silica and magnesite has increased considerably with the installation of waste heat dryers. It has, however, frequently been impossible to check up the production records of the molders with the records turned in by the setters, because of miscount of the contents of the cars or misreading the markings or size.

One plant has overcome trouble due to this source by placing a card holder on each car. This is formed of sheet iron about four by five inches, and one-quarter inch in thickness.

When a molder loads a car with shapes of any kind, he makes out a record on a card and places it in this holder. The record on the card must be identical in every way with the record of production he turns in.

The setters do not need to make out any report. All they do is to hand in the cards from the cars, and the office makes up the record from them. In this way production records and kiln records agree at all times.

Frequently, with the old system, a shortage would appear when there was no shortage at all. This led to extra expense and loss due to making up more shapes to fill the order, most of which could not be sold.

Cyclopedia News

Devoted to Enlarging the Usefulness of the CLAY PRODUCTS CYCLOPEDIA

Published by
INDUSTRIAL PUBLICATIONS, Inc.

407 S. DEARBORN STREET
CHICAGO, ILL.

RADIO BRINGS ORDERS BY THE DOZEN

When we put the first copies of our CYCLOPEDIA in the mails, we did so with the hope that the industry would find it as valuable as we considered it to be. However, we never imagined that we would ever receive an order by radio for a dozen copies. You can easily, therefore, imagine our pleasant surprise when the wire, which is reproduced herewith, was brought in to us.

Upon investigation we found that this message was filed in London on

China, Japan, Ireland and other foreign countries has enlarged the scope of the book beyond the confines of America, and will spur us on to make the second edition of utmost value to every clay products manufacturer thruout the world.

In line with the order for a dozen copies the British Clayworker published the following review of the book in their latest issue. It fits in so well with our hopes, plans and ideas that we reproduce it here complete.

clay products, it ought to sell exceedingly well.

"The editors say quite frankly that in preparing the volume they have kept uppermost in their minds the great necessity for detailed information that exists today, and will exist for many years to come, 'regarding every step that is required to change raw clay or shale into the best material in the world for the many purposes for which it is used.' They look back frankly on the past six or seven years in the United States 'in which there has been small demand for many lines of clay products. A study of industrial history, however, shows that business activity swings like a pendulum.' On this basis they feel that they are safe in predicting that the curtailed business of the past few years in American clay products will be reflected by abnormal demand in the years ahead. Even at the time they wrote, the unmistakable signs of returned prosperity were very evident. Hence the issue of this cyclopaedia.

Information Both New and Copied

"Naturally, much of the information is copied from authoritative sources, but also much of it is original. The book consists of two main parts; the first, information on definitions and statistics, and the second, catalogue pages of the manufacturers of equipment. The definitions cover 117 pages and describe 752 processes, materials and pieces of equipment. These definitions are amply illustrated. The statistical section covers 75 pages, arranged and indexed for instantaneous reference.

"The editors rightly claim that the chief value of the cyclopaedia lies in the fact that it combines in one book information which the clay products manufacturer would otherwise be compelled to search for in various catalogues or many different reference and technical books.

"Although the cyclopaedia deals almost exclusively with American practice, it contains a vast deal of matter of value to British clayworkers. We have made arrangements to supply copies at 12s. 6d. each, carriage paid, direct from this office."

POSTAL TELEGRAPH - COMMERCIAL CABLES	
CLARENCE H. MACKAY, PRESIDENT	
RECEIVED AT 438 SOUTH DEARBORN STREET CHICAGO, ILLS. TELEPHONE: WABASH 2960; LOCAL 118	DELIVERY NO.
TELEGRAM	
This is a fast Telegram unless otherwise indicated by signal after the number of words - "Blue" (Day Letter) "N.L." (Night Letter) or "N.T." (Night Telegram) Form 16 D-1 STANDARD TIME INDICATED ON THIS MESSAGE.	

21 CH JI 951AM 11.

CB London Jan 19, 1923

Brick Record.

407 South Dearborn Street, Chicago, Ills.

Send Twelve Cyclopedia's.

Clayworker.

the morning of January 19, sent by radio from London to New York and by Postal telegraph system from New York to Chicago. It was received in our office early on the same day that it was sent, that is, January 19.

We cannot help but feel a pardonable pride in this order, not at all from the monetary standpoint, but because of the source of the order. For generations English clay products manufacturers and especially English potters originated many of the processes and systems in use in this country, and their libraries on ceramic subjects have always been more voluminous than ours.

This order together with those that we have received from Australia, India,

"We believe that clayworkers all over the world will extend a very hearty welcome to the 'Clay Products Cyclopaedia,' which has just been published by Industrial Publications, Inc., 407 South Dearborn Street, Chicago (which, of course, is the same organization as that which publishes the Brick and Clay Record). These are days when handbooks and volumes of trade recipes suffer considerable competition from encyclopaedias of all sizes, sorts and descriptions, and as this new 'Clay Products Cyclopaedia' is published at the modest price of three dollars, contains information of value to every official of a clay company, from chairman to foreman, and deals with every branch of the clay products industry, including both pottery and heavy

Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

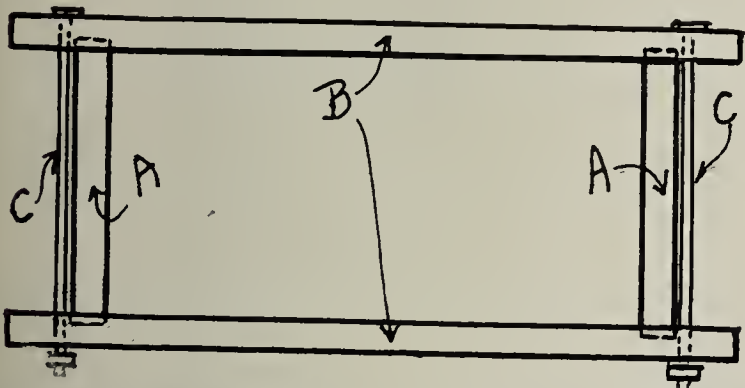
WANTS TO MOLD FIRE CLAY MUFFLE SHAPES

1,063. Ontario.—We would appreciate any information you can give us regarding the proper method of molding small fire clay muffles.

We might add for your information that we are primarily manufacturers of furnaces for heat treating steel, and purchase the greater part of our fire brick and tile from large manufacturers. However, we also find it to our advantage, when special shapes are needed in small quantities or on short notice, to mold them ourselves and fire them in a small gas and oil fired kiln. Just now we are interested in some small muffles for a new furnace; hence this letter.

Raw fire clay shrinks about one inch in 12 and most of the time this is objectionable in making hand-made shapes. Most of the plants, therefore, mix a certain percentage of grog in order to reduce the shrinkage. A mixture of about 20 per cent. of grog will reduce the shrinkage to about five-eighths of an inch per foot.

A mold is made of some smooth finished wood like white pine or cypress, large enough so that when the material is dried and burned the finished piece will be of the proper size. There are two chief ways of making a mold; one is a tight mold and the other a loose one. The tight mold has a bottom fastened permanently to the sides. A loose mold has a loose bottom which is clamped to the sides while the ware is being



Plan of Loose Mold for Making Fireclay Shapes. A Indicates the Ends, B the Sides and C the Bolts for Holding the Mold Together When in Work. The Nuts on the Bolts Are Usually Thumb Nuts. A Tight Mold Is Made Practically the Same, Except That All Parts Are Fastened Permanently by Screws

made. The loose mold is also fastened together at the four corners with long bolts (C) which extend from one side to the other. The ends (A) of the mold are mortised into the sides (B). We believe your muffle shapes are thin and therefore the loose mold would be easier to work. We are attaching a sketch showing the construction of a loose mold in order to make our explanation clearer.

During the manufacture of these shapes the bottom is fastened temporarily by the clamps to the sides and ends of the mold. When the shape is made, a wire is drawn over the top of the mold to make it of the exact thickness desired. The mold is then turned up-side-down on to another board, the clamps removed and the mold taken apart. This leaves the piece on the second board ready for drying. The mold can then be put together again and another shape made.

Robinson's Clay Working Equipment

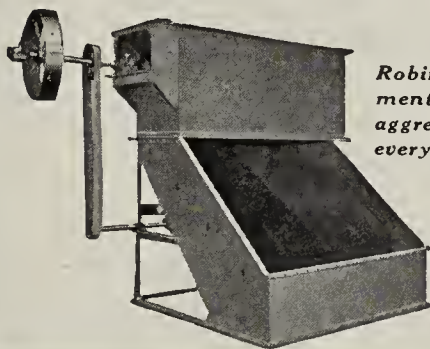
includes—

Kiln Bands Dryer Cars
Screens Pallets
Steel Rails and Portable
Track
Brick and Tile Machinery
Rock and Shale Crushers
Wire Rope—in fact, every-
thing for the clay plant.

Ask for our catalog and prices

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
918-920 Behan St., N. S.
Factory and General Office PITTSBURGH, PA.



Robinson's Equip-
ment is used by
aggressive plants
everywhere.



2 37

Classified Ads

(Continued from page 373)

WANTED—Position as superintendent of brick plant. Technically educated, twenty years' practical experience in manufacturing and burning of the various clay products. Thoroughly understand machinery and handling of labor. Address: 2-2ADA, care of "Brick and Clay Record." 2-2-2P

WANTED—Several pallet and single, double, or triple deck dryer cars. Prefer 22½ in. and 24½ in. gauge. In reply give full description, age, and lowest price. A. P. Green Fire Brick Company, Mexico, Mo. 2-2-2

FOR SALE—1 four mould Ross Keller dry press. This machine has only been run a few months. Reason for selling, converting our plant to stiff mud. Here is a good press at a bargain. 1 slide valve steam engine, Gardner throttling governor with automatic stop, left hand, 14x20, solid bed, with 10-foot balance wheel—pulley 72x18. About 100 H. P. West Virginia Brick Co., Charleston, W. Va. 2-2-3

FOR SALE—Four mould Berg dry press. Hydraulic-Press Brick Company, 1337 South Kingshighway, St. Louis, Missouri. 2-2-3

SOUTHERN NEGRO LABOR SUPPLIED
Advance orders taken. Correspondence invited. Parker & Co., 419 East 42nd, Chicago. 2-2-4

(The above ads were received too late to classify. Be sure to refer to pages 372 and 373 also.)

Put Your Coal Problem Up To—

WALTER BLEDSOE AND COMPANY

WE OFFER you fuel from mines producing the best Fourth Vein Coal, and we are willing to spend time and money in properly preparing coal for your use.

This coal—graded into all standard sizes—is the output of seven Fourth Vein Mines located on three railroads, and we have ample resources to supply your individual needs.

Put your problem up to us.

HOME OFFICE
Terre Haute Trust Bldg.,
Terre Haute, Ind.

CHICAGO OFFICE
Old Colony Bldg.

CINCINNATI OFFICE
Union Central Bldg.

INDIANAPOLIS OFFICE
Guaranty Bldg.

The Digger

for the average sized plants

The machine that digs, loads and mixes enough clay, for a capacity of 25,000 to 100,000 per day at an average cost of \$8.00 per 10 hours. An excellent machine for stripping. Saves enough over hand labor to more than pay for itself in a short time, besides improving your ware thru a better mix. Caterpillar or track mounting, gasoline or electric power.

In many instances it has displaced 12 men and is costing less for operation than the wages of three of them. The price with caterpillars is less than \$3,000

Even the very small plants can afford and ought to have the BAY CITY.

You will need a digger this year.



THE BAY CITY DREDGE WORKS
Bay City, Mich.

There are two chief methods used for making shapes of this type. In the first, a mixture of kerosene and lard oil is placed on every part of the inside and bottom of the mold. The operator, on a block which has a good foundation, forms a rough wad of clay which is about 1½ inches shorter and 1½ inches narrower than the mold. This wad is usually about twice as thick as the mold. When this is formed he drops it into the mold and then bounces the mold in order to force the clay to every part of the mold.

The second method is to wet the inside of the mold with water and then throw the mold into a sand-box so that every part will have a thin layer of white silica sand and at the same time have no surplus. With this process, the molder usually takes chunks of clay weighing about five pounds and throws them into the mold continuously until it is full and enough left on top to cut off with the wire. The top of the sides and ends of the mold are usually covered with sheet iron one-sixteenth or one-eighth inch thick to prevent the wear of the wood that would naturally ensue on account of contact and friction with the wet mud. Sometimes the insides of the mold are lined for the same reason, when many pieces are to be made from one mold.

A tight mold must always have air holes at various places in the bottom to admit air when the tile is being taken out.

Drawn from the Kilns

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clay Manufacturing

E. F. LONG DIES AT 74

Edward F. Long, 74 years old, of Sturgis, Ky., who was a brick and tile manufacturer, died at his home January 30. Mr. Long was well known to the clay products industry thruout Indiana and Kentucky.

DEATH TAKES R. A. BAILEY

Russell A. Bailey, aged 65 years, treasurer of the Springfield (Mass.) Brick Co., died at his home in that city recently after a brief illness. He had been located in Springfield for some 20 years and prior to that time was a brick manufacturer of Danielson, Conn. He was a native of Biddeford, Me.

A. W. HUTCHINGS DIES

Artemus W. Hutchings, who with his brother, manufactured brick for many years at Orland, Me., under the firm name of A. W. and A. B. Hutchings, died at his home in that town recently. He was born in Penobscott in 1849 and for the past 42 years had been engaged in the manufacture of brick.

F. W. BUTTERWORTH TOURING MEDITERRANEAN

F. W. Butterworth, general manager of the Western Brick Co., Danville, Ill., left February 3, with his wife and daughter, Catherine, for a Mediterranean cruise of several months' duration. This trip will also include a trip up the Nile.

SIBLEY RADIOS A BRICK MESSAGE

John W. Sibley, of the Birmingham (Ala.) Clay Products Co., one of the best known brick manufacturers in the South, delivered a speech in Birmingham on the history of brick, which was broadcasted by the radio station of the Alabama Power Co. to all parts of the country.

It is said that this is the first address on the brick industry ever broadcasted in the United States. It was of much interest as an educational talk on brick.

R. H. McKINLEY GOES TO MARTINSVILLE

Robert H. McKinley, formerly the chief engineer and secretary of the Indiana Paving Brick Manufacturers' Association, now holds the position of sales manager for the Martinsville (Ind.) Brick Co.

McHOSE ADDRESSES EMBRYO CERAMISTS

M. M. McHose, of L. H. McHose, Inc., Perth Amboy, N. J., clay miner, gave an interesting talk at a meeting of the Rutgers Ceramic Club at the Ceramics Building, Rutgers College, New Brunswick, N. J., January 12, on the subject of "Some Aspects of Clay Mining."

H. H. BOHLMAN LEAVES HAWKEYE

H. H. Bohlman, formerly superintendent of the Hawkeye Clay Works, Fort Dodge, Ia., has changed his position and is now with the Middleton-Kelly Brick Co., at Canton, Ill., as superintendent. The work of motorizing the Canton plant will be begun by Mr. Bohlman very soon.

M. F. WILLIAMS SUCCUMBS TO ILLNESS

Milton F. Williams, president of the Williams Patent Crusher and Pulverizer Co., St. Louis, Mo., passed away on February 8, after suffering 18 months from diabetes. In 1895, Mr. Williams invented the Swing Hammer and Pulverizer and in 1897 he founded the company bearing the present name. His company had the honor of being placed on the preferred list as an essential industry during the late war. The company's products are being exported to many foreign countries. Mr. Williams leaves a widow, three sons—Milton Judson, Chicago; Arthur F., Clayton; Oliver H., San Francisco—and a daughter, Mrs. Edgar M. Carson, St. Louis.

CALIFORNIANS EAT SNOW

St. Louis will probably remain long in the memory of L. S. Collins and Gus Larson, of Los Angeles (Cal.) Brick Co., and C. G. Berg, of Post Costa Brick Co., San Francisco. Returning from the convention of the Common Brick Manufacturers' Association, they stopped at St. Louis to visit some of the plants there as the guests of Otto C. Oehler, of Continental Brick Co. On Sunday, February 11, the entire party were guests of Mayor Kiel of St. Louis on a sightseeing tour of the city. Out in Forest Park, where the snow was plentiful, they stopped to watch the sledding parties and the temptation to partake of the sport was too much even for Californians. Headed by Mayor Kiel, they all got on one bobsled and started down the big hill. There is some suspicion that the irrepressible mayor tipped off the boy at the helm, for about half-way down the sled swerved and the rest of the way was made by rolls and bounds. A Californian won't admit that he likes an Eastern winter, but Mr. Berg could hardly be dragged away from the sport. The rest of them didn't have much to say, according to report.

BICKERSTAFFS OPERATE GOOD PLANT

A brick manufacturing plant of the South which is well known for its good quality of brick is the Bickerstaff Brick Co., Brick Yard, Ala. This company has several large kilns for burning brick and the finished product is shipped to all parts of the southeast. The executives of this company are A. H. Bickerstaff, Hugh Bickerstaff and F. J. Bickerstaff, who maintain that in this modern time brick are most acceptable for the construction of new residences or other buildings, and where frame is used, there is often a combination of frame and brick in the construction.

BRICK SECOND INDUSTRY IN COLORADO

Colorado is forging to the front as a manufacturing state. At the present time the biggest single industry from a manufacturing standpoint is represented by the steel mills in



Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.

THE CHASE FOUNDRY & MFG. CO.
COLUMBUS, OHIO

CHASE

WOULD YOU LIKE TO
MAKE BETTER
BRICK
?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
ROESSLER & HASSLACHER
CHEMICAL CO.,
NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO

If Marked



It Is Good

Clay Working Machinery

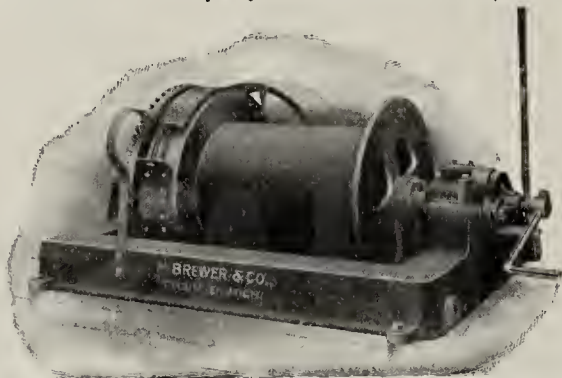
Block, Brick and
Tile Machines
Pug Mills
Crushers
Granulators

Feeders
Disintegrators
Dry Pans
Cutters
Hoists, etc.

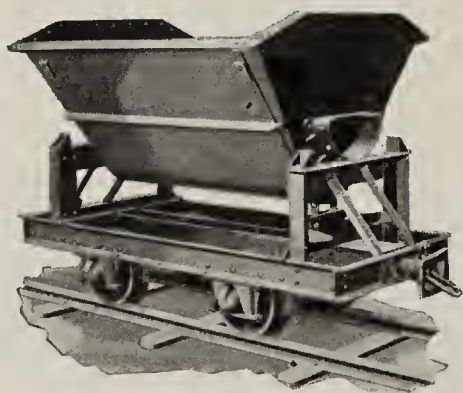
Free Engineering and Clay Tests

Brewer engineering service is available without charge or obligation. Competent men will give you best advice, look over your plant and make suggestions for any needed improvements. Take advantage of this free service. Send for Brewer catalog.

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Lakewood Cars



Lakewood "V" Dump Car

Hyatt bearings, spring pedestals and spring draft rigging on Lakewood "V" Dump Cars reduce drawbar pull to a minimum, permit high speeds and increase tonnage hauled.

For Clay Cars, Electric Transfers, Clam Shells, Storage Battery Trucks, write "LAKEWOOD."

The Lakewood Engineering Co.
Cleveland, Ohio

Pueblo, Colo. Second to steel is the manufacture of brick and other clay products. Colorado is rich in high grade clay from which brick of all kinds may be made, especially ornamental and fire brick.

FIRE DAMAGES COLORADO PLANT

The Longmont (Colo.) Brick & Tile Co. experienced a fire recently at its plant. It was caused by sparks from the kilns blowing in the direction of a barn, completely destroying it and 12 tons of hay. Fortunately, the Longmont fire department street flusher with the help of neighbors volunteered their aid, thereby preventing the fire from spreading farther. It is reported that the loss is \$400, and the property was not covered by insurance. This plant plans to open in the spring.

EXHIBITS AT STATE SHOW

During the week of February 5 the annual industrial show staged each year by the Colorado Manufacturers and Merchants Association was held in Denver's large auditorium. Among the firms maintaining exhibits at the show was the Denver Terra Cotta Co. One feature of the show's entertainment program was the number given by the Industrial Princesses representing different Denver business concerns. The Denver Terra Cotta Co. had a young lady represent them and this princess came in for a lot of notice and gave the firm some very good publicity.

SAVES 2 DAYS' TIME WITH OIL

The Hall-Spiers Brick Co., Inc., of Berlin, Conn., has replaced its former kiln burning apparatus with oil burning equipment. By the new process, the company burns a kiln in four days instead of six days as formerly with the use of wood.

CHANGES OFFICERS COMPLETELY

A complete change in the personnel of the Connecticut Brick Co. at the annual meeting of the company in New Britain, Conn., recently, is announced. Frank E. Holmes of New Britain, widely known brick manufacturer, has been elected president; Reginald E. Towers, also well known as a brick manufacturer, has been elected vice-president; J. M. Murray is the new treasurer and H. W. Upson is the new secretary.

George H. Todd and J. C. Lincoln retire from the board of directors, and Messrs. Towers and Murray are elected to the board in their places. Mr. Holmes was formerly secretary of the company, Mr. Todd was president and treasurer and Mr. Lincoln was vice-president.

BRICK FROM GEORGIA FELDSPAR

There is in Georgia a great quantity of impure feldspars and pegmatites which are unfit for use as pottery ingredients but which, it is hoped by the U. S. Bureau of Mines, will make satisfactory vitrified face-brick when mixed with an appropriate amount of white clay and burned to a dense body. With this idea in mind test pieces have been made at the ceramic experiment station of the Bureau, using varying proportions of several different feldspars and clays. The test pieces will be burned at several different temperatures.

CHICAGO COMPANY RAISES CAPITAL

The Lake View Brick Co., Chicago, Ill., it is reported, has increased its stock from \$50,000 to \$200,000.

BUILDING NEW WAREHOUSE

A tract of land consisting of 40 acres was purchased by the Chicago Fire Brick Co., near Tessville, Ill., for about \$60,000 and it is said that \$30,000 will be expended on con-

struction and equipment. This property will be used as the company's sixth distributing warehouse.

MINTER BREAKS INTO CENTRAL DISTRICT

The Acme Brick Co., of Danville, Ill., has contracted with The Minter System of Georgia to install that system in the plant at Cayuga, Ind. There are eight kilns and it is planned to build two more. Later two other kilns may be built so that the plant can be operated in two units of six kilns each. Douglas Stevens, the manager, also states that he is considering the adoption in the future of the Minter System of drying, thus making it a completely equipped Minter plant.

This is the first installation of this system of burning in the central part of the country, and its operation will be watched with interest.

BRICK AS TREADS IN CONCRETE STEPS

In Park Ridge, 12 miles out of Chicago, brick is dividing favor with concrete for one use in particular. Builders in several instances countersunk brick in a concrete formation. This idea is used in constructing front and side steps. The concrete tread surface is sunk to the thickness of an ordinary brick. Then the brick laid side by side, ends toward the riser, are cemented in the countersunk space, leaving six or eight inches at either side. In other buildings, dwellings in particular, brick alone is the material, some laid flat, others on edge. Treadways for automobiles, from the curb back to the private garage, are being laid with brick, this idea seeming to find much favor with car owners.

CANNELTON ELECTS OFFICERS

Directors recently were chosen for the Cannelton (Ind.) Sewer Pipe Co., at the annual meeting of the stockholders. The following officers were named: Henry Bosquet, president; Henry M. Clemens, first vice-president and general manager; Fred Colby, second vice-president; Anthony P. Clemens, treasurer; Charles A. Clemens, sales manager; Edward F. Clemens, secretary. The company has increased its capital from \$100,000 to \$300,000.

NEED NOT PAY EMPLOYEES IN CURRENCY

The many brick plants of Southern Indiana look with favor upon the action of the Indiana Supreme Court, which held unconstitutional the payroll law of 1913, under which employers must pay employees in cash twice a month, and which resulted in their being the target for yeggs and auto bandits, a condition which has grown worse the past few years. Employers argued that a check was merely an order on a company treasury or depository, and that payment was not made until check was cashed, therefore payment was in cash. The decision of the upper court is generally popular.

RAILROADS FIGHT IN RATE CASE

21 railroads operating in Indiana filed suit recently in Superior court in Indianapolis for an injunction to prevent the public service commission from putting into effect an order suspending increased freight rates on brick and clay products. The increased rates put in effect by the order of the Interstate Commerce Commission were suspended for intrastate traffic by the public service commission on the petition of the brick manufacturers. The public service commission ordered the increased schedule suspended November 1, but later advanced to February 21 the date for making the order effective. Plaintiffs in the suit for injunction are the B. & O., Monon, C. & E. I., C. M. & St. P., Big Four, C. I. & W., Central Indiana, E. I. & T. H., E. J. & E., Erie, Grand Trunk, Illinois Central, L. E. & M., Michigan Central, New York Central, N. Y. C. & St. L., Pennsylvania, Pere Marquette, Southern, T. St. L. & W., and Wabash.

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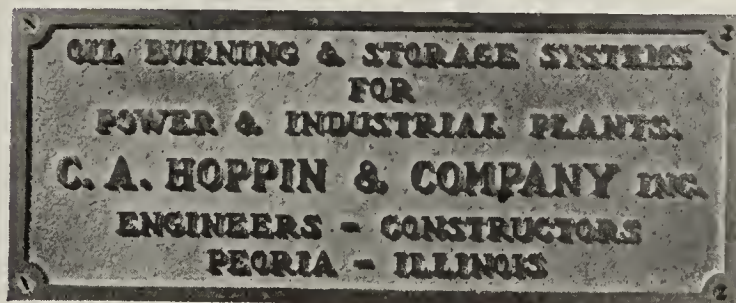
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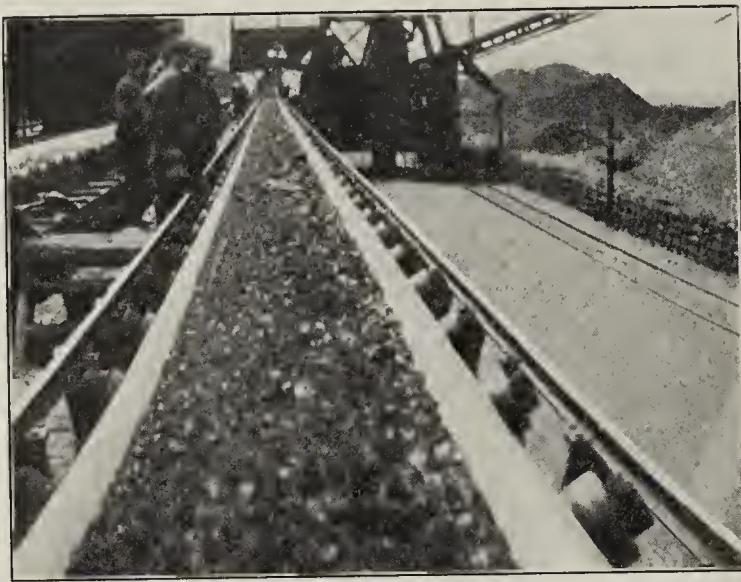
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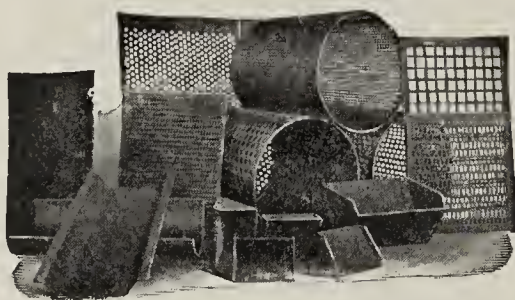
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CONCRETE MONOPOLIZES INDIANA PAVING

A twin bill to the one introduced in the House of the Indiana general assembly which would prohibit the state highway department from constructing more than 30 per cent. of one type of hard surface road in one year, has made its appearance in the Senate and has been referred to the committee on roads. The bill is understood to have the support of the brick and asphalt interests, who have been complaining for some time because the state highway commission will not build more roads of those two materials and because the commission has been building roads principally of concrete. The bill introduced previously in the house, was referred to the house committee on roads.

Other bills have been presented in the Indiana general assembly which would compel the state highway commission to ask for bids on five different materials for paving and to permit any manufacturer of paving materials to submit any specifications for building or resurfacing highways approved by the Federal road bureau. The bills are supported by the Indiana Highway Industries, an organization of manufacturers and distributors of brick and all types of asphalt, which has charged the highway commission with favoring cement interests.

J. C. Kelly, president of the Indiana Highway Industries, asserted recently that it has been notorious that present Indiana highway specifications bar competition among the different types of pavements. In a statement he said: "Last year, out of approximately 125 miles of pavement let by the commission, all but seven miles were concrete. These seven miles of brick were laid only after the Indiana brick manufacturers made a strong protest to the state administration of the conditions that exist. It has been the policy of the highway department to purchase the cement needed for concrete roads and contractors bidding on such roads did so with the understanding that the cement would be furnished. This was not the case with brick and asphalt and the consequences were that the bids showed a wide divergence."

ARLINGTON, IA., MAY GET PLANT

Business men are working on plans which may result in the establishment of a thriving manufacturing plant for Arlington, Ia. The product proposed for production is brick and tile. There is an abundance of raw material in this locality suitable for the manufacturing of a very durable quality of the product.

With tiling of farm lands only well started in this locality the saving of freight alone of the tile used would mean a great deal to the community. Tests of the material at hand disclose an unlimited supply.

TO START LUMBER DEPARTMENT

The Capital City Vitrified Brick Co., Topeka, Kans., anticipates in the near future to open a lumber department which will be a new addition to the plant. W. C. Glenn, formerly manager in Perry for the Paul Huycke Lumber Co., will have charge of the new department.

KANSAS PLANT CHANGES HANDS

Interest in the Verdigris Valley Vitrified Brick Plant, Independence, Kans., has been sold to the following men who are now controlling the stock of the company: M. B. Gilkerson, Wichita; W. E. Bullis, Topeka, and T. R. Steel, Oklahoma City. The plant has been shut down for repairs.

TYLER AMENDS CHARTER

Amended articles of incorporation have been filed by the R. B. Tyler Co., Louisville, Ky., fixing its capital stock at \$150,000, and the debt limit at \$200,000. R. B. Tyler is president.

KENTUCKY MEN TO COMBINE ON RATE PROBLEM

Thru the efforts of James T. Howington, of the Coral Ridge Clay Products Co., Louisville, Ky., a letter is being gotten out to all of the brick and clay men of the state, by B. A. Word, traffic expert for an independent traffic bureau. This letter is an effort to get expressions of opinion from the manufacturers in the state as to the advisability of holding a meeting in Louisville for discussion of the Southern Freight Rate situation as affecting brick and clay products.

LOUISVILLE FORMS LOCAL ASSOCIATION

The Louisville brick interests which haven't had a local brick club or association since back in the war period are forming a new organization which will probably be called the Louisville Clay Products Association.

This organization will take in the jobbers and manufacturers of clay products, with especial attention to the face brick trade and with the idea of developing better conditions, adoption of a code of ethics, establishment of better general relations, and for the purpose of getting together at luncheon once a week for discussion of matters of interest to the trade. The credit matter is another which may be taken care of in this way.

The old organization established a rule which is in use today, concerning discounts for cash, in 15 days, and did some work which has held. However, during the war period when business was slow several companies became lax, there were some deaths, and eventually the number of members became so limited that it was useless to try to hold dinner meetings.

W. E. Whaley, jobber of face brick, and clay products, has been selected as president; and Herman Bishop, of the Southern Brick & Tile Co., is secretary-treasurer. A Committee on Ethics is composed of L. J. Bolster, of L. J. Bolster & Co.; L. M. Parsons, of the building supply and brick department of the R. C. Tway Coal Co.; and James T. Howington, of the Coral Ridge Clay Products Co.

Included in the membership of the new organization are all of the local brick handling houses.

From this number of members it is believed that enough brick men will attend weekly luncheons at the local hotels to make the meetings of such interest that everyone will want to attend to discuss conditions arising, and the outlook. It is conceded that a local club is needed.

The present plan is for a luncheon-meeting every Wednesday. The organization will be completed at the next regular meeting.

SACO COMPANY STOPS MAKING BRICK

The Saco (Me.) Brick Co., for nearly 100 years engaged in the manufacture of brick, has abandoned brick manufacturing and in the future will devote all of its efforts to the handling of clay products used in building construction. The company will also handle cement and lime.

The company last fall purchased a large tract of land in North Street, Saco, and foundations will be laid at once for a large warehouse there for handling the clay products. A siding from the Boston & Maine railroad will be built into the plant.

The company also plans the construction of some 20 residences for officials. President Lewis B. Stillman of the company will erect a residence for his own use early in the spring. A new street is also being built by the company.

DISCARDS WOOD FOR OIL

The E. L. Cook Brick Co. at North Middleboro, Mass., is installing oil burning equipment to use for operating its kilns in place of wood and coal.



Records Speak Volumes

The unusual qualities of Caldwell Cypress Tanks are proven by their enviable records in all sections of the country. Perhaps this is largely due to the fact that, of all woods, cypress is the one which lasts best outside its native climate.

Thirty years experience in building tanks enables us to couple this remarkable tank wood with workmanship and design that ensure the maximum of tank satisfaction.

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We will supply this valve fitted with a special disc for steam, hot or cold water, air, gas, and other fluids and vapors.

With these specially compounded discs, you can have, in each case, a valve precisely suited to any requirement.

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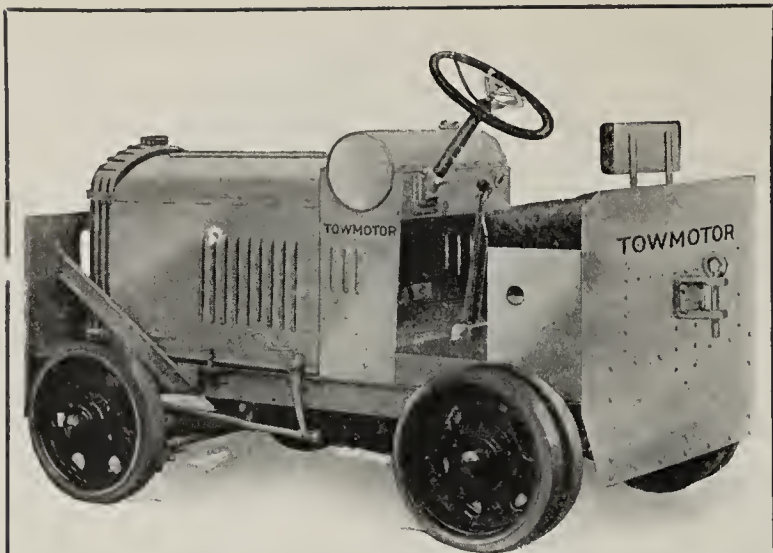
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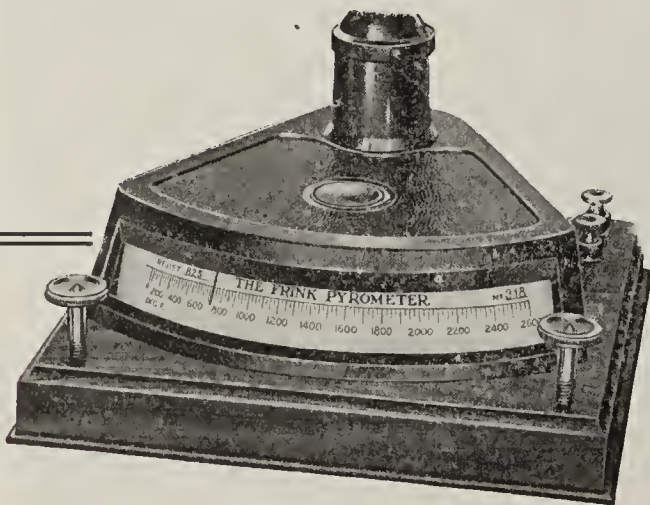
*by equipping your kilns
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FRINK PYROMETERS

which afford perfect control of all temperatures—saving time and money in the burning and enabling your burners to hold even temperatures, thus improving the quality.

WRITE FOR DETAILS

THE FRINK PYROMETER COMPANY
LANCASTER, OHIO



CLIPPERT INCREASING CAPITAL

The Clippert Brick Co., Springwells, Mich., has arranged for an increase in capital from \$100,000 to \$700,000, to provide for general expansion.

NEW COMPANY FOR DETROIT

The Rex Clay Products Co., Detroit, Mich., has been incorporated with a capital of \$25,000, to manufacture and deal in brick, tile and other burned clay products. The company is headed by Howard T. Rex and John P. Rex, 1717 Virginia Park, Detroit.

NEW COMPANY TO START IN MAY

The Dearborn (Mich.) Brick Co., a company incorporated with \$200,000, will be ready for work not later than May 1, it is reported. The property for the new plant was formerly owned by John Wilkie and the plans and specifications for the building are under way in the office of the Talbott & Meyer Bldg. Co. Practically all of the machinery has been purchased. The daily capacity will be 100,000 brick and it will be one of the most modern and up-to-date plants in the state.

MISSOURI COMPANY BRANCHES OUT

The Missouri-Indiana Fire Clay Co., a Missouri corporation, has qualified to do business in Indiana, with a total of \$10,000 of the corporation's capital stock represented in the state. Floyd Herrich, of Hillsdale, Ind., is named state agent of the company.

GETS LARGE TILE ORDER

An excellent contract is received by the Western Brick & Supply Co., Nebraska City, Neb., to supply hollow tile equivalent to a million brick, in dimensions, 3x12x12 and 4x12x12 for the construction of the new state capitol building at Lincoln. W. Stein, manager, stated that work on this contract will begin about March 1, and several months would be required to fill this unusually large order. Several men will also be added to the working force to help complete this work.

ANOTHER CONCRETE BRICK PLANT

Hudson Fireproof Block Co., North Bergen, N. J., manufacturers of a fireproof brick and block known as Straub Block, has been incorporated with a capital stock of \$300,000, it is reported. This is a concrete brick enterprise and will offer competition with clay products in its district.

NEW TILE PLANT FOR JERSEY

The Hudson Fireproof Block Co., North Bergen, N. J., has been organized under state laws to operate a local plant for the manufacture of hollow tile and kindred burned clay products. The company is capitalized at \$300,000, and is headed by John E. Toolan, David T. Wilentz and Leon E. McElroy. The registered office is on Garden Street.

NEW YORK CONCERN INCORPORATES

The Johnson (N. Y.) City Brick Co. has been formed under state laws to operate a local plant for the manufacture of common brick and other burned clay products. The company is headed by D. M. and J. M. Kennedy and D. W. Jones. It is capitalized at \$100,000, and will be represented by Mangan & Mangan, Phelps Building, Binghamton, N. Y.

CROUSE INCREASES CAPACITY

The Crouse Clay Products Co., of Akron, Ohio, has completed the erection of a new building and the installation of additional machinery. The capacity of the plant has been increased fully 30 per cent. The officers of the company are looking forward to one of the best years in the history of the concern during 1923.

ROSS WILL BUILD NEW PLANT

Stockholders of the Ross Clay Products Co., with a plant located east of Dennison, Ohio, voted, January 20, to erect another plant near Lock Seventeen on 200 acres recently purchased for this purpose. The new plant will have 14 kilns and work will be commenced in the spring, officials announced.

A. F. B. A. "OHIO REDS" MEET

The Ohio Red Group, American Face Brick Association, held a special meeting at the Athletic Club, Columbus, February 14, when all of the head burners and many of the assistants were invited to participate in a general discussion on the question of burning. A large attendance was present and much interest centered in the meeting. Mr. Carlyle, of the Carlyle-Labold Co., of Portsmouth, is chairman of the group.

O. W. RENKERT PRESIDENT OF METROPOLITAN

O. W. Renkert was elected president and general manager of the Metropolitan Paving Brick Co. of Canton, Ohio, succeeding his brother, the late Harry S. Renkert, who died last summer in Switzerland. The election of officers was held February 7 at a meeting of the board of directors named at the annual meeting of the stockholders. C. C. Blair was named vice-president and sales manager; J. C. Barbour secretary and treasurer; C. W. Keplinger, chairman of the board of directors; R. B. Keplinger, assistant general manager. Donald Renkert, son of the late H. S. Renkert, was elected a director to take his father's place on the board, and H. A. Butler was named a director to succeed R. C. Steese.

Reports for the last year show that the business of the concern has been very satisfactory and the outlook for the coming year is unusually fine, according to officers of the company.

The Metropolitan company has seven plants in the Canton-Youngstown districts, operating at capacity and is one of the largest manufacturers of paving blocks in the United States.

FARMER DISCOVERS FIRE CLAY

Ben Brockelman, a farmer located two miles north of Ponca City, Okla., recently discovered a six-foot vein or deposit of fire clay, at five feet beneath the surface and a 16-foot bed of paving brick shale about 15 feet below the surface. The deposit of commercial quantities of brick shale on the farm, including red, buff and blue shales were discovered some time ago but the fire clay is a new find. Mr. Brockelman plans to use the clay commercially.

LETS PUBLIC INSPECT BRICK HOUSE

A brick house, unusually attractive and pleasing in design, has been completed for A. H. Wethy, Jr., president of the Standard Brick & Tile Co., Portland, Ore. It will be open for public inspection for one week and representatives of the Standard Brick & Tile Co., will receive the visitors and explain to them the merits of the methods and materials that have been used. The house has six rooms and is of the most modern type, costing without special features, approximately \$7,000.

WILL REBUILD BRICK PLANT

W. G. Humphrey, of Pittsburgh, Pa., who owns a brick plant at Kingston, Pa., which has been standing idle for a considerable length of time, is planning to reconstruct the plant and will manufacture stiff mud brick. This plant is adjacent to the Jos. Soissons Fire Brick Co. property.

REIFF & CO. TO REPRESENT PHILIPP BAUER

Reiff & Co., manufacturers of chemicals, drugs, and raw materials, and whose foreign department address is Drexel Building, Philadelphia, Pa., announce their appointment as

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*See the Northwest Shovel
shake its dipper—*

WATCH A NORTHWEST in a clay pit. See it dig deep and come up with its dipper piled high with sticky clay. Then watch its operator shake the dipper stick back and forth with fast sweeps and quick stops until the clay is loosened and falls.

This is just one more advantage of the Northwest's one-motor construction. It has no auxiliary engines, gears or racks; full power for shaking the dipper and for crowding is obtained directly from the 50 h.p. gas engine or electric motor of equal capacity.

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DRAGLINE
SHOVEL**

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TENNESSEE COMPANY INCREASES CAPITAL

Tennessee Brick & Tile Co., Dyersburg, Tenn., has been authorized to increase its capital stock from \$10,000 to \$50,000, it is said.

FORM \$500,000 COMPANY IN TEXAS

The San Antonio (Tex.) Clay Products Co. has been organized under Delaware laws, with capital of \$500,000, to operate a local plant for the manufacture of brick, tile and other burned clay products. The company is represented by the United States Corporation Co., Dover, Del.

UTAH PLANTS WORTH \$3,500,000

\$3,500,000 is the total estimated value of clay plants in Utah. These plants manufacture approximately 75,000 tons of clay products annually. The clay industry in that state is constantly growing. At the present time the Salt Lake Pressed Brick Co. is expending about \$150,000 in additions and improvements to its plant. New lines are constantly being added and in all probability terra cotta and roofing tile will soon be among the products manufactured.

REFRACTORY COMPANY BUYS LAND

James B. Hammond of the Hammond Fire Brick Co., Charleston, W. Va., has purchased 33½ acres of land near Gladys Creek, also a large tract in Marion County from the Glade Fire Brick Co. of that city, it is recorded in the county clerk's office. \$28,000 was the amount named in the transfer.

STANDARD'S BUSINESS IS GOOD

W. C. Trotter, president of the Standard Clay Products, Ltd., St. Johns, Que., states that business in 1922 was better than two or three years previous. Business in 1923 depends largely on the ability of the municipalities to finance public works and purchase sewer pipe.

WYOMING COMPANY SELLING SURPLUS

M. Callaghan of the Glenrock (Wyo.) Brick Co. was recently in that city looking after his business interests there. He reports that the supply of brick that had been stocked is beginning to get a little low. Mr. Callaghan says that the weather is rather cold to continue work at this plant in Glenrock at the present time, but just as soon as the weather will permit he will resume operations in the Wyoming city.

STOCK NOW ON MONTREAL EXCHANGE

Two thousand shares of a par value of \$200,000 in an authorized \$250,000 common stock issue of the Interprovincial Brick Co., Ltd., Toronto, have been listed on the Montreal Exchange. The capital also includes \$250,000 of seven per cent. cumulative preferred stock.

HOME BUILDERS BUYING BRICK FOR SPRING USE

Large contracts being awarded to Toronto, Can., brick manufacturers and the stacking of brick on lots in that vicinity is sufficient evidence that the outlook for home building is bright. One brick manufacturing plant is devoting its time to stacking 600,000 brick on an open field in the Danfort district, and they will be used to erect 60 houses in that locality.

EQUIP YOUR KILNS

With

BEST'S
"CALOREX" OIL BURNERS

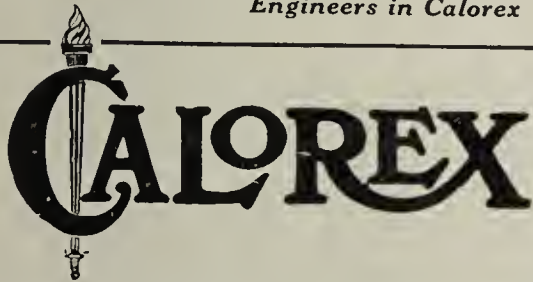
- Are simple in construction and operation
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- Will cut burning time and increase production
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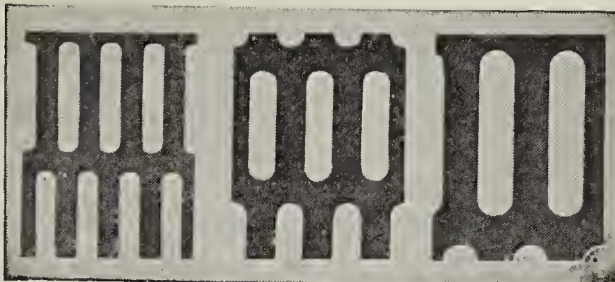
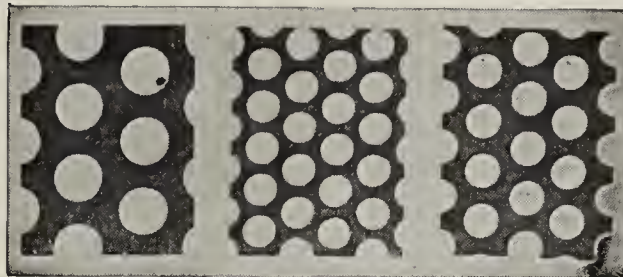
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Sheets furnished flat or rolled to shape for
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"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of
the Columbia Brick Works, Portland,
Oregon, in regard to their

MARION
"RUST SPECIAL"
Feeder and Mixer

Read his letter:

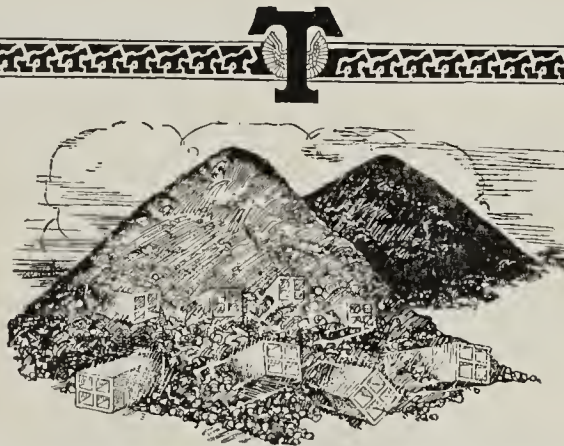
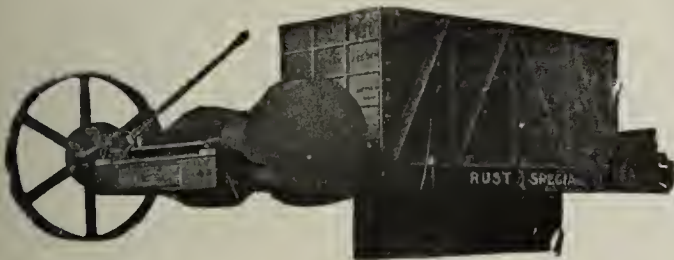
"We have been using the Rust Feeder for some
time. We find that it gives us a better mixture
of clay and a more uniform feed into the
crusher, and has proved entirely satisfactory
for our requirements."

Write for catalog describing the full line of
MARION Clay Plant Equipment. No obliga-
tion to buy, but money in your pocket if you do.

Marion Machine Foundry & Supply Co.

P. O. Box 395

MARION, INDIANA

**Increase the Yield**
Of Your Coal Pile!

All spoiled ware that leaves your kilns
represents, in addition to lost effort, wasted
material and time, a definite loss of fuel.

The yield of your coal pile can be increased
by the adoption of temperature control methods.
Ask us to prove this—and to prove also that the
installation of

Thwing
PYROMETERS

make temperature control practical, simple, economical.

Thwing Instrument Company, 3347 Lancaster Ave., Philadelphia, U.S.A.

118

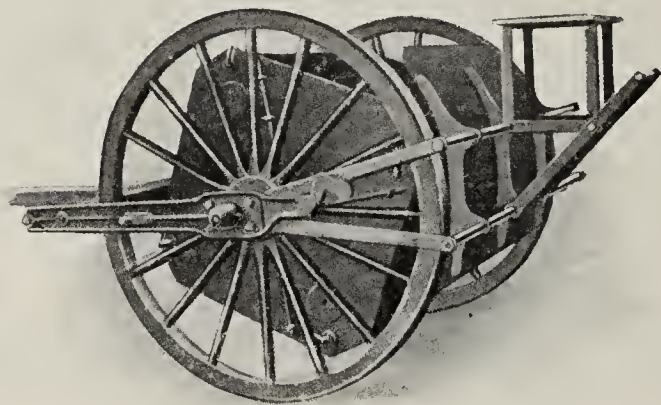
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.

Write for full information regarding this machine

Fernholtz Brick Machinery Company
ST. LOUIS, MO.

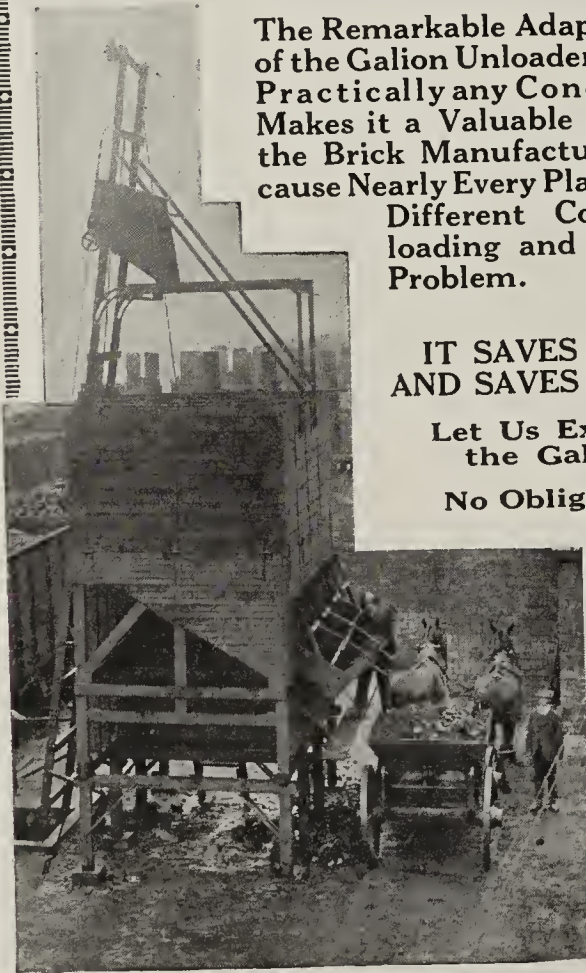


Adaptability

The Remarkable Adaptability of the Galion Unloader to meet Practically any Conditions Makes it a Valuable Asset to the Brick Manufacturer, Because Nearly Every Plant Has a Different Coal Unloading and Storing Problem.

IT SAVES TIME AND SAVES MONEY

Let Us Explain the Galion
No Obligation



The GALION
Iron Works & Mfg. Co.
Galion, Ohio

In order to avoid the general rush for demand of brick in March, and on account of the roads being almost impassable just after the frost leaves the ground in the spring, many home builders and contractors are purchasing and having delivered to vacant lots a supply of brick sufficient for a good start in spring.

It has been learned thru various brick manufacturing companies of Toronto that material for commercial and office buildings and factories is particularly promising for the year 1923, and manufacturers have already received orders for brick to be used in the construction of business property.

KENNEDY SAYS LABOR IS BETTER

Thomas Kennedy, general manager of the Dominion Sewer Pipe & Clay Industries, Ltd., Swansea, Ont., looks for a good business in 1923. Financial conditions are getting better and work which has been held up will no doubt be proceeded with this year. Labor has increased in efficiency. Wages are about the same but coal is about 50 per cent. higher and at times last year was from 150 to 200 per cent. higher than in 1921.

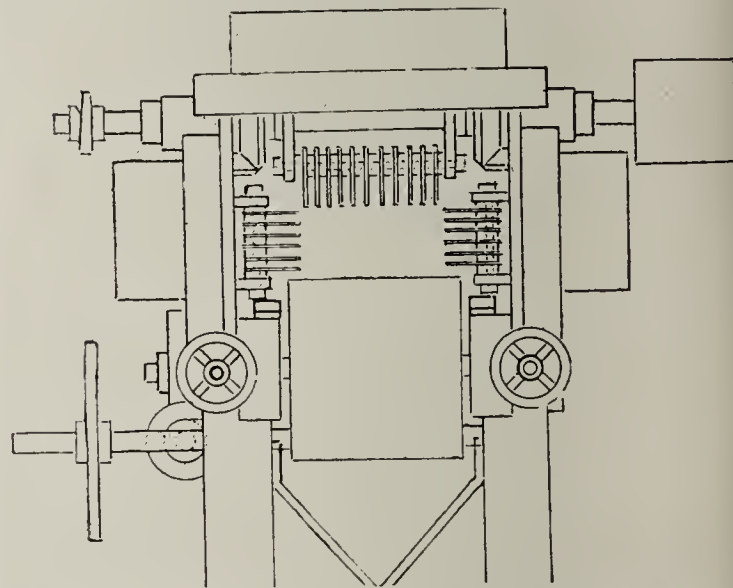
Machinery and Equipment

Devices and Methods, New and Old Concerning Which Information of Interest to the Clay Manufacturer Is Published

ROUGH FACE ON DRY PRESS FACE BRICK

Putting a rough texture on the surface of brick manufactured by the dry press process is gaining increasing popularity and several machines have been perfected which will do this work.

The Fernholtz Brick Machinery Co., of St. Louis, Mo., is now marketing a rough texture machine which is called



Machine for Producing a Rough Surface on a Dry Press Brick.

the Oriental Dry-Tex Brick Machine. It is claimed for this machine that it has a capacity of 5,000 to 50,000 brick per day and that it is automatic, requiring no experience to operate. It is economical of operation and will make a wide range of designs and effects. It is operated independently of the dry-press machine and either rough texture or smooth face brick can be made at any time as desired.

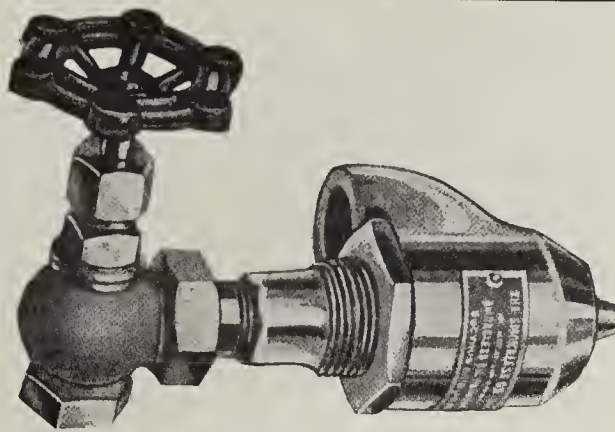
The brick are conveyed on a belt between revolving cylinders carrying a number of independent swing blades or knives

Confidence! Faith!

We have faith in our ability to better your kiln operation and results by equipping them with GATES AUTOMATIC STOKERS. We back this up by our willingness to show you any installation we have made.

This is as fair an offer as can be made by anyone, and, we believe, merits your confidence. Come and see them yourself—no matter how skeptical you may be.

The Clay Service Corporation
138 N. LaSalle Street
CHICAGO



ARE YOU LOOKING AHEAD?

In many sections of the country wood and coal are high priced and difficult to obtain.

Unless you provide some other means for burning your brick your production this Summer may be seriously hampered.

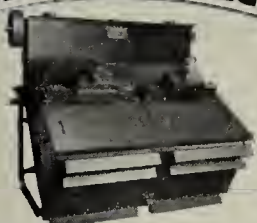
Oil is the cheap and convenient fuel. Easy to obtain, easy to handle, does not deteriorate in storage. In most cases it will lower the cost of your product.

Let our Experts give you some real helpful suggestions on efficient oil burning. No obligation.

The Smokeless Oil Burner Co.

Bucyrus, Ohio

Tanks, Pumps, Meters, Strainers.



TYPE 31 - Six Foot HUM-MER

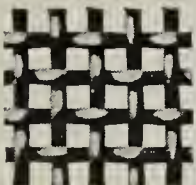
HUM-MER Electric SCREEN

Makes screening and crushing more profitable. Screens any material, wet or dry, from 2½" opening to minus 200 mesh

Send for Catalogue No. 45-B

THE W. S. TYLER COMPANY
CLEVELAND, OHIO

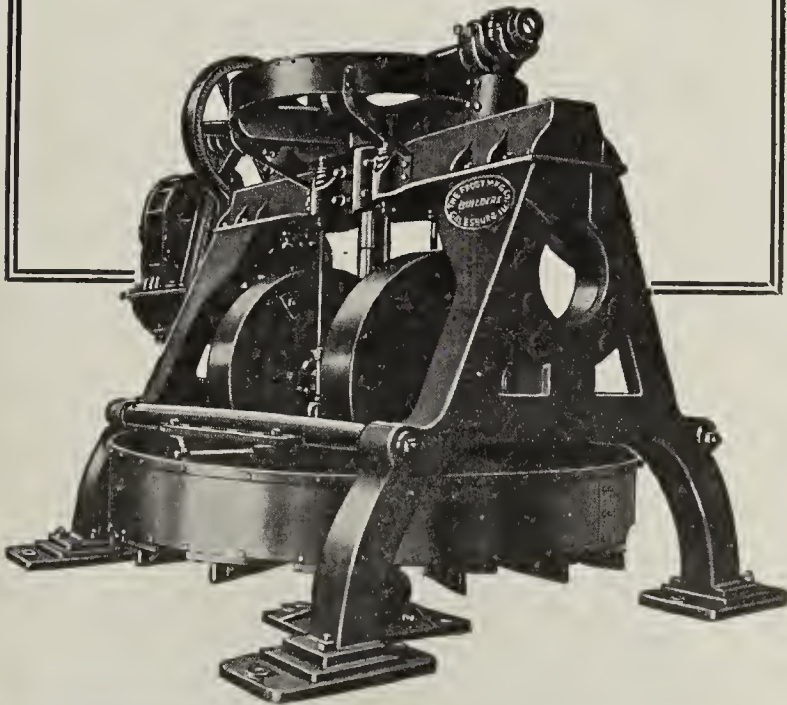
Manufacturers of Woven Wire Screens
and Screening Equipment



BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE



MINSTER LOCOMOTIVES

are particularly adaptable to clay pit work. Not only does a Minster offer you cheaper haulage, but affects a big saving in time and labor.

*Ask about the Minster
2 to 8 ton capacities*

THE INDUSTRIAL EQUIPMENT CO.
510-510 OHIO STREET MINSTER, OHIO

Eastern and Export Department
The Herbert Crapster Co., Inc.
1 Madison Ave., New York City

DIESEL ENGINES FOR CLAY PLANTS

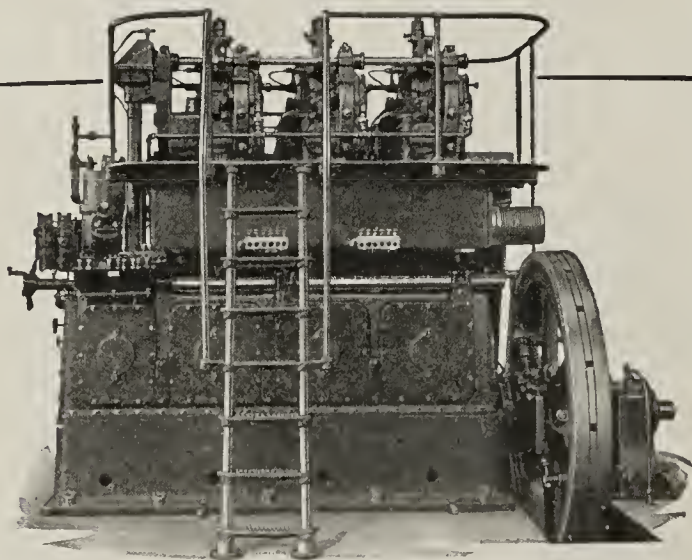
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.



which come into contact with the brick at various points and at different intervals thus producing an irregular surface on the brick which give them the much desired rough face.

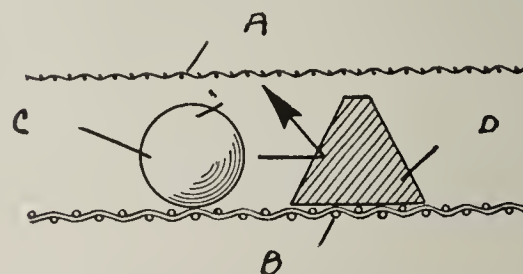
This machine was designed by W. C. Mitchell, who has had over 30 years of practical experience in manufacturing brick and kindred clay products by the various processes in the United States, Canada, Mexico and West Indies.

✱ ✱ ✱

NOVEL CONSTRUCTION USED IN SCREEN

The large tonnage of the clay products industry that must be screened makes the Rotex sifter or screen, as patented and manufactured by the Orville Simpson Co. of Cincinnati, of special interest to the industry. Any size of cloth or wire screen from two to 300 mesh can be used. The interesting feature lies in the method that is used to keep the screen free of clogging or of obstructions.

The screen is mounted on a frame, which is given a gyratory hand-like motion by a belt and bevel gears. Beneath



Section Showing the Screen. A Is the Upper Screen of Fine Mesh Thru Which It Is Desired to Pass the Clay or Shale. B Is the Coarse Ball Supporting Screen. C Is One of the Rubber Balls Which Are Jerked Against the Inclined Surface D by the Gyrating Motion of the Screen. The Balls Are Thrown Upward Against Screen A.

the regular screen there is a heavier, coarser screen that supports and holds a series of rubber balls and triangular shaped pieces with inclined surfaces.

The several parts are put together in such a way that when the screen is moved back and forward the rubber balls bounce against

the inclined surfaces and are deflected upward to the screen wire, thus giving that wire a slight blow. This action jars loose any material that is sticking around the openings in the screen, thus preventing clogging and obtaining the full capacity of the screen.

✱ ✱ ✱

SILVER JUBILEE MEETING DRAWS 600

(Continued from page 322)

The refractory possibilities of some Georgia clays were explained by R. T. Stull, formerly connected with the U. S. Bureau of Mines. He called attention to bulletin No. 26 of the Ohio Geological Bureau, which stated that the average quality of fire brick has fallen off from one to three cones within late years.

The Georgia deposits cover a wide bed 250 miles long and from 25 to 50 miles wide. The deposits are very refractory and the deformation points of 24 large samples varied from cone 33 to cone 39 plus.

Georgia Clay Brick Are Good

Brick made from Georgia clays when burned sufficiently hard at the time of manufacture stand up as well or better than the standard brands used under present conditions.

Some changes that should be made in the standard slagging test for refractories were explained and brought to light by R. F. Ferguson. He showed that the present tests deal chiefly with penetration, whereas chemical action between the slag and the brick is far more important.

A series of tests were carried on with several kinds of slag and eight different brands of refractories, both ground very fine. Various percentages were employed and comparisons made. It was interesting to learn that basic open

hearth slag intimately mixed with equal parts of magnesite or chrome stood up to cone 35.

S. M. Phelps followed with a similar talk on the effect of gases upon refractory brick at high temperatures. Several types of refractories were treated at 950 deg. C. with mixtures of equal volumes of air and the gases shown in the column headings in Table I on page 322.

Watts Discusses Alkalies

The afternoon session opened with a paper by Professor A. S. Watts on an investigation concerning the influence of the alkalies and alkali earths on the fusion temperatures of the different types of refractory clays. The result showed that clays that are high in alumina, resist the action of the alkalies, sodium and potassium better than the action of the alkaline earths containing calcium and magnesium. Brick that are high in silica content have the opposite effect. R. F. Geller followed with a progress report on load tests for fire brick specifications as applied to boiler practice. The brick were tested first and later identical brick were reburned to 1,350 deg. C. and given the same load test. The second set of brick invariably stood a greater load test. The conclusion is that for boiler practice hard burned brick give the best satisfaction.

E. H. Gartrell then detailed some experiences he has had in burning fire clay refractories with gas, with the aid of pyrometers and cones.

Time Study in Burning Refractories

The paper of L. C. Hewitt containing experiences with time study in burning refractories, and the establishment of bonus figures based on these studies was very interesting. He showed slides of time studies of every movement or operation required in the burning process. The benefits shown are the result of four or five years' operation.

The paper of J. H. Kruson, on the insulation of periodic kilns, was read by E. E. Ayars, and showed a saving of 15 per cent. fuel with a 4½ inch Sil-O-Cel brick in the walls of a round down-draft kiln, nine inches from the inside and a layer of 2½ inches on the crown.

Fred A. Harvey, explained some difficulties encountered in the use of pyrometers for burning silica brick. The company with which he is connected uses a base metal thermocouple up to 1,800 deg. F. Above that they use a Leeds-Northrup optical pyrometer. In cooling they use the base metal from 2,000 deg. F. downward. They cannot burn with coal of less than 13,000 B. t. u., while coal of about 13,500 B. t. u. requires 11 days and coal of 14,000 B. t. u., eight days for burning.

Burning with Producer Gas

The advantages of using producer gas in burning refractories and especially the use in conjunction with compartment continuous kilns, were shown by W. D. Richardson.

R. M. King followed with a progress report on the heat transfer values in refractories. Professor A. S. Watts discussed this paper and asked for assistance and cooperation of manufacturers, so that the experiments can be carried on until some definite conclusions are reached.

The discussion of the consumers' problems was opened by a paper on the refractory requirements for stokers by George I. Bouton, in which he stated that his experience showed that 40 to 42 per cent. of the failure of stoker linings is due to spalling.

Alan G. Wikoff followed with a thoro explanation of the uses and requirements of refractories in oil refining. In some cases the heat resisting quality need not be high, but spalling is a serious defect. The greatest demand in this

PEABODY *for* SERVICE

When You Buy Coal

Consider these facts

SINCE 1883 we have been supplying consumers of carload coal.

For forty years the name PEABODY has stood for Good Coal and Efficient Service.

Today PEABODY is operating 44 mines in 12 districts with annual capacity of 23,000,000 tons, and supplying coal to industries in 28 states and British Columbia.

PEABODY SERVICE

is not a matter of chance. It is the result of immense resources intelligently handled by an organization thoroughly experienced in serving carload buyers.

Buy from a dependable source. Let us figure on your requirements.

PEABODY COAL COMPANY CHICAGO

Cincinnati		Deadwood, S. D.
St. Louis	Kansas City	Kleenburn, Wyo.
Springfield	Omaha	Spokane, Wash.

PEABODY *for* SERVICE



No Matter How Hard the Digging—

AMSCO

Clark Reversible Dipper Teeth

Will "bite" their way thru the hardest clay or shale.

They are made of AMSCO Manganese Steel, which accounts for their remarkable strength and resistance to abrasive wear.

Note the simplicity of construction, the ease with which the point can be REVERSED or RENEWED, merely by removing the wedge type bolt which is set parallel to the dipper lip. The bolt is protected by bosses cast on the base, which prevent it from shearing off.

The Clark Reversible has been adopted by many of the large clay plant operators thruout the country, because it has proved itself, in actual service, to be the most satisfactory and economical design.

Manganese Steel steam shovel dippers, fronts, lips, racks, pinions, gears, sheaves, etc., also provide the ultimate in service and economy.

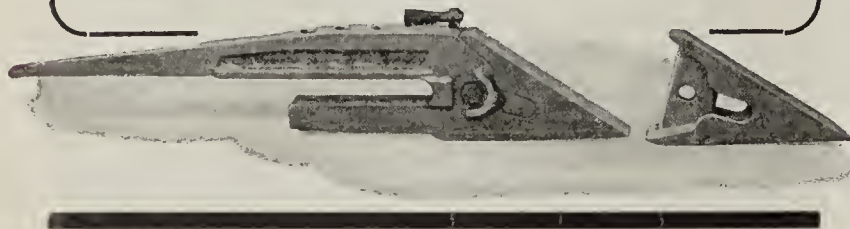
American Manganese Steel Co.

General Offices: 393 E. 14th St., Chicago Heights, Ill.

Foundries

Chicago Heights, Ill., New Castle, Del., Oakland, Calif.

WRITE FOR OUR EXCHANGE PROPOSITION
ON DIPPER TEETH



industry is in cracking stills where the temperature is in the neighborhood of 2,800 deg. F.

Metallurgical Requirements of Refractories

The requirements for suspended boiler arches as explained by J. E. Harlon, were practically the same as shown listed by George I. Bouton in the talk referred to above.

The rest of the session was devoted to the metallurgical requirements of refractories in the manufacture of zinc by electric processes, aluminum, copper, copper alloys, iron and steel and in the use of electric furnaces. Dr. D. A. Lyon, of the U. S. Bureau of Mines, was in charge of this colloquium and the papers read were prepared by B. M. O'Harra, R. J. Anderson, Francis R. Pyne, H. W. Gillett, C. E. Williams and F. W. Davis.

The entire spirit and intent of this colloquium was to give the manufacturers a chance to tell the users what the limitations of refractories are and the users an opportunity to explain their requirements. This discussion will be continued next year under present plans, as there is a fine opportunity to do constructive work for both sides.

E. E. Ayars, superintendent of the Joliet, Ill., plant of the American Refractories Co., was elected chairman, Fred A. Harvey, of the U. S. Refractories Co., of Mt. Union, Pa., vice-chairman and R. F. Ferguson, of the Mellon Institute, Pittsburgh, secretary of this section for the coming year.

Terra Cotta Division

THE TERRA COTTA DIVISION attendance fell considerably below that of last year's meeting, but the interest was very keen. The last year's officers were elected to succeed themselves this year: Adolph H. Hottinger is chairman and R. L. Clare is secretary.

The first paper, by T. A. Klinefelter, on mold shop practices was unusually good. This is the first paper of its kind ever presented and took up a phase of manufacturing very rarely discussed. Mr. Klinefelter brought to light some very instructive features in his paper and also discussed the mitre cutting department.

Hewitt Wilson gave a very excellent list of abstracts on subjects bearing on or allied with the terra cotta industry. This was a monograph of literature prepared by students at the University of Washington.

Davis Describes New Frit Furnace

A progress report on materials used for patching terra cotta was given and a description of an outline for a chemical analysis for testing barytes used in terra cotta manufacture. H. E. Davis described a new type of frit furnace recently installed at the Northwestern Terra Cotta Co. plant, which embraces many new principles of design and operation. Mr. Davis also presented another paper, which was a study of the absorption and rate of absorption in the plaster mold used in terra cotta work. Contrary to what might be expected, a plaster mold of greater porosity did not speed up the rate of absorption of moisture from the terra cotta body wall.

E. C. Hill presented a discussion of body mixes used in terra cotta manufacture, the purpose of the discussion being to determine the best method of preparing and mixing the ingredients used in the terra cotta body.

James G. Vail discussed the various types of silicate of soda used in the ceramic industry. To the amazement of many of the members, he stated that there were about 21 varieties of sodium silicate marketed and brought out the point that these different varieties would naturally produce a variable effect on the properties of a body in which they are used.

CLAY PLANT EFFICIENCY

starts with the
**PROPER
PROPORTIONING**
of the Clay and Water

THE SCHAFER POIDOMETER

is today the only machine on the market which will, with any degree of accuracy, proportion clay and water. It weighs according to adjustment, from $1\frac{1}{2}$ lbs. to 21,000 lbs. per minute.

Accurate
Efficient
Economical
Durable
Satisfactory

Write for complete information

**SCHAFER ENGINEERING
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PA.

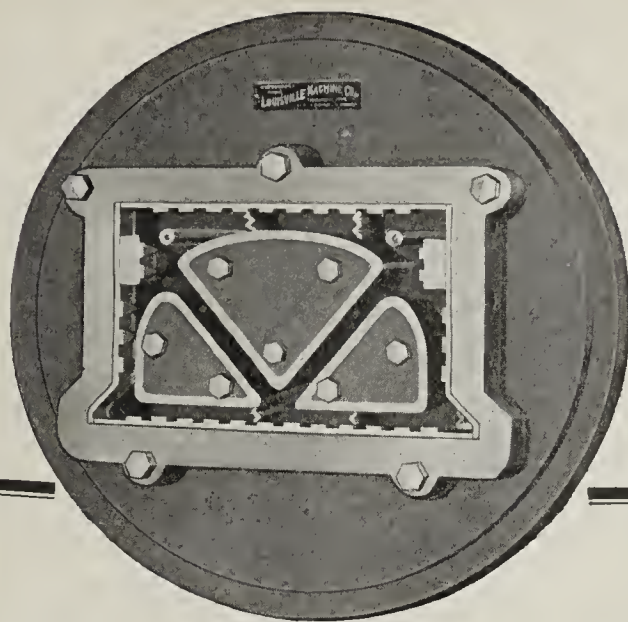
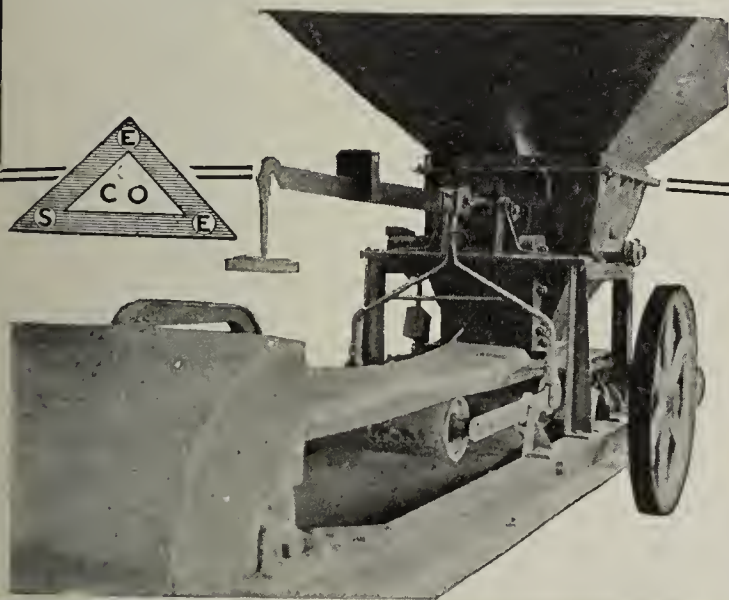


Fig. 3

WE CAN HELP YOU

Possibly you need some particular clay working die that you cannot have made up in your city.

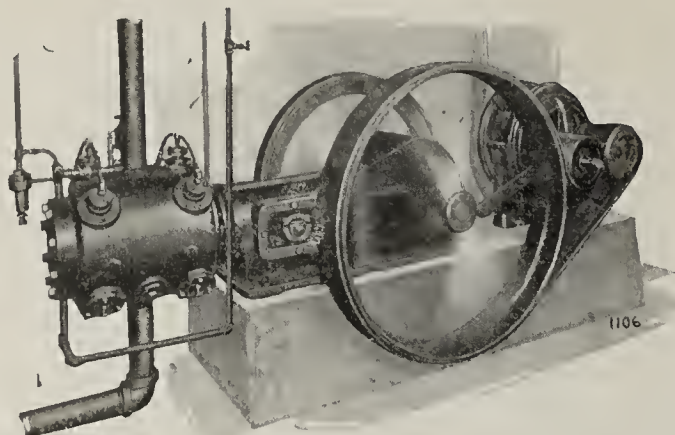
We specialize in just such service, and are well equipped to turn out not only dies for hollow ware, brick, tile, etc. but intricate and special dies as well.

*Mail us a rough sketch
or blue print and let
us figure with you. No
obligation.*

**LOUISVILLE MACHINE
MANUFACTURING CO.**

Louisville, Ohio

**"IF IT'S DIES YOU WANT—
WE MAKE 'EM."**



An ideal compressor for moderate needs

CHICAGO Pneumatic Short-Belt Motor-Driven Air Compressors are ideal units for the small air power plant. Their compact construction economizes space. The short-belt drive with idler pulley prevents belt troubles.

These units embody the same advanced principles of design and construction as the larger Chicago Pneumatics—Simple Plate Practically Indestructible Flat-Disc Valves, Automatic Regulation and Lubrication, Liberal Bearing Surfaces—all insuring more power with less upkeep.

Electric motor, steam and belt-driven types of these units are usually available from stock at the Company's branches listed below. Capacities, 69 to 1197 cubic feet per minute. Ask for bulletin 418.

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
*Sales and *Service Branches all over the World*

*BIRMINGHAM	*DETROIT	*LOS ANGELES	*PHILADELPHIA	*SEATTLE
*BOSTON	*EL PASO	*MILWAUKEE	*PITTSBURGH	*ST. LOUIS
*CHIC. GO	*FRIE	*MINNEAPOLIS	*RICHMOND	
*CINCINNATI	*FRANKLIN	*NEW ORLEANS	*SALT LAKE CITY	
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C-52

BOYER PNEUMATIC HAMMERS—LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS—VACUUM PUMPS—PNEUMATIC HOISTS
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CHICAGO



PNEUMATIC

The Compressor with

the Simple Valve

White Ware Division

THE WHITE WARE DIVISION led all others in attendance this year with a registration of 81 delegates. Frank H. Riddle as president and C. C. Treischel as secretary were elected as officers for the coming year, the latter to succeed himself. 31 papers were scheduled on the program, and nearly all of them were presented.

Of great interest were the papers on feldspar, saggars and heat distribution in an up-draft kiln.

A. V. Bleininger of the Homer Laughlin China Co., gave an interesting and instructive discussion of what happens inside of a potter's up-draft kiln during the firing of white-ware. He referred especially to variations in different sections of the kiln as to atmospheric conditions and heat content. This is a subject which has received but very slight attention in the past, but a subject that has important bearing upon the production of highest quality of ware at lowest cost.

Classification of Feldspar

The papers on feldspar lead to a discussion on the classification of this raw material. The division purposes to make a study of the various feldspars on the market, and with the aid of the producers of this material, efforts will be made to classify feldspar as to purpose and uses.

A colloquium on saggars brought forth instructive discussion from the experience of many of the delegates. The sagger problem is an important one in the fabrication of whiteware. It is proposed to institute a program of cooperative study of the sagger problem. To help finance and support this research, manufacturers' associations in the various branches of the whiteware industry such as the U. S. Potters' Association, Sanitary Potters' Association, Associated Tile Manufacturers, and so forth, will be asked to contribute funds.

* * *

THE BUILDING SITUATION

(Continued from page 333)

\$7,000,000 by the local building department. Present indications point to a duplication of the record figures of 1922 during the coming months, the advent of spring estimated to show monthly averages for all classes of work in excess of \$12,000,000.

The labor situation holds satisfactory at Philadelphia, and conditions for the coming year are expected to remain at this status. The present wage schedules are being maintained. Local brick producers are giving employment to large working forces and are making ready for heavy business for the spring months. It is currently estimated that the demand for common brick in 1923 will be 25 per cent. more for local and immediate vicinity operations than in the year just closed. The combined output of the local yards aggregates 1,000,000 brick per day.

Baltimore

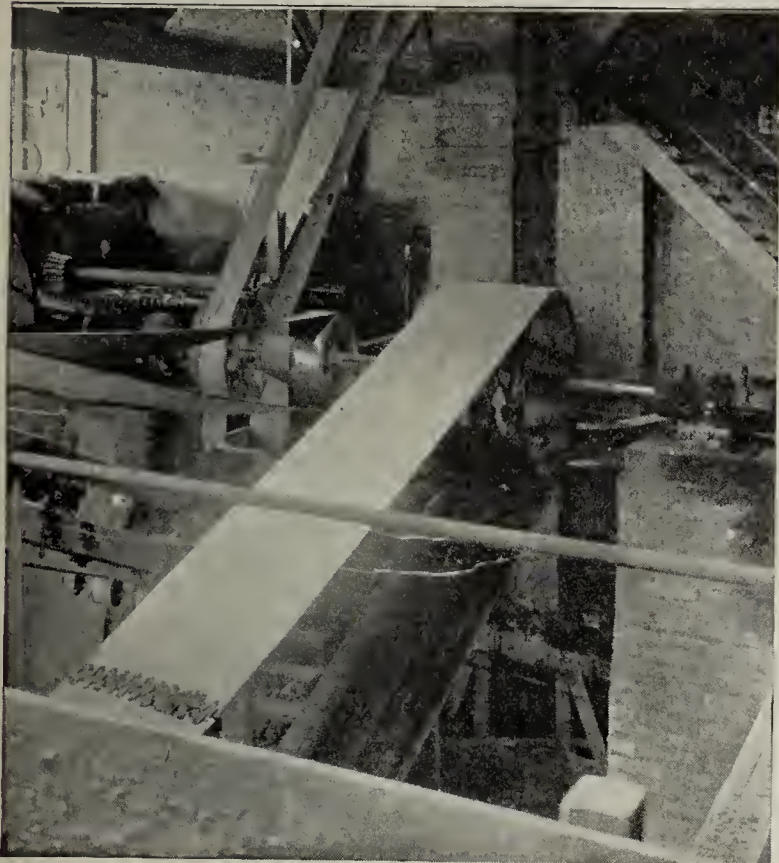
Operations at Baltimore during January are quite close to those during the same month of a year ago, which rounded out slightly in excess of \$3,700,000. Industrial work is again coming into its own locally and a number of large permits for such buildings have been issued thru the month. There is a heavy demand for common brick for this character of work and for dwelling construction, and local yards equipped for winter production are being called upon to deliver many thousands of brick daily.

The Central West

January building contracts in the Central West (comprising Indiana, Michigan, Illinois, Wisconsin, Iowa, Nebraska, Mis-



GOODYEAR MEANS GOOD WEAR



Copyright 1923, by The Goodyear Tire & Rubber Co., Inc.

On all the hard drives for which the brick and clay industry is noted—the main drive, the crushers and grinding pans, pug mills and brick machines, represses and auxiliaries—and in all conveying and elevator duty, Goodyear Belts have an earned reputation for powerful, trouble-free service and long, economical life.

TRANSMISSION

Goodyear, Klingtite,
Glide

CONVEYOR

Goodyear, in distinctive
types for specific
services

HOSE

Air, Water, Steam, Fire
and Mill

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Asbestos and Rubber
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PUMP VALVES

Goodyear Belts and other mechanical goods for the brick and clay industry are scientifically specified to their work under your conditions of service by the G. T. M.—Goodyear Technical Man.

For performance records or any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

GOODYEAR
BELTS • HOSE • VALVES • PACKING

AN OFFER

TO ANY BRICK OR CLAY PLANT
IN THE UNITED STATES

We know that one inherent difficulty in your manufacturing plants is more breakage and more rapid wear of gears than experienced in many other industries.

It is physically impossible for a cast tooth gear to run as truly and as smoothly as a cut gear, and so long as cast gears are used breakage will persist.

It is physically impossible for an untreated steel gear to have the strength, toughness and surface hardness of a heat-treated gear, so as long as untreated gears are used wear will be more rapid—gear life will be relatively short.

Now here is our offer: Let us make you one gear or one pinion, no matter how large or how small, to replace the gear you have the most trouble with now, either from wear or breakage, and we will guarantee our BP gear to last at least four times as long as any cast tooth or untreated gear in the same place.

If it will do that, you don't need any mathematician to figure what your saving will be. You save the cost of three gears and the labor cost of three renewals, and you save three shutdowns. Send us your specifications today and begin this big saving at once.

*Let us send you booklets going
into details on these subjects.*

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"HURRICANE" DRYERS



TUNNEL DRYER FOR INSULATORS

Reduce Your Drying Costs

One concern cut their drying time from 10 days to 2 days. Another concern cut 50 to 75 per cent of their sagger costs. If you have a drying problem, our engineers may be able to solve it.

"Hurricane" Dryers are constructed and equipped to reduce steam, labor and power consumption, and turn out the best grade of finished ware. Where our standard machines will not meet requirements, we are prepared to submit plans of specially designed apparatus.

Catalogs on request.

Automatic Mangles
Automatic Stove Rooms
Tunnel Dryers
Electrical Porcelain Dryers
Sagger Dryers



THE PHILADELPHIA
DRYING MACHINERY COMPANY
3351 Stokley St. Philadelphia, Pa.

Western Office: 1814 CONTINENTAL BANK BUILDING, CHICAGO

souri, Kansas and Oklahoma) amounted to \$68,051,000, the largest January total on record for this district. Activity in January was nine per cent. slower than in December, but 41 per cent. better than in January, 1922.

Included in last month's total were: \$22,316,000, or 33 per cent., for residential buildings; \$16,805,000, or 25 per cent., for public works and utilities; \$10,148,000, or 15 per cent., for industrial buildings; and \$9,125,000, or 13 per cent., for business buildings.

Contemplated new work reported during the month amounted to \$306,374,000.

Building continues to operate at an unusually high rate of speed for winter in the city of Chicago. Building permits for January, 1922, were in excess of \$18,000,000—\$2,000,000 more than double the total of the permits for January, 1922. The housing shortage has been greatly reduced and quarters for 125,000 persons have been provided by the new construction since January 1, 1922.

The Northwest

January building contracts in Minnesota, the Dakotas, and Northern Michigan amounted to \$2,994,000, a drop of one per cent. from December and of 31 per cent. from January, 1922. 45 per cent. of last month's total, \$1,356,000, was for residential buildings, and 31 per cent., or \$939,000, for industrial buildings.

Contemplated new work reported in January amounted to \$22,890,000.

St. Louis

January construction work in St. Louis was valued at \$2,560,326, an increase of more than 100 per cent. over January, 1922, which had a total of but \$1,119,530. The permits numbered 887, of which 555 was for new building involving an outlay of \$2,218,380.

Value of building permits issued in the St. Louis Federal Reserve district in December, 1922, was approximately three times as great as the value of permits for the same month in 1921. Much of the increase was furnished by Memphis, where 208 permits for new construction valued at \$4,290,000 were issued. In December, 1921, that city had permits valued at \$1,229,160. The grand total for St. Louis, Louisville, Memphis, Evansville and Little Rock was \$9,267,248, compared with \$3,017,045, while alterations and repairs totaled \$847,513 against \$343,359.

Atlanta and Southeast

With excellent weather prevailing over the Southeast construction is unusually active and brick demand is at a higher point than it has been in some three or four years at this time of the season. In 1922 Atlanta established a new building record with almost \$21,000,000 worth of construction, and unusually good records also were made in the other larger cities of the district. The outlook for 1923 promises an even greater building year, for all lines of business have greatly improved and financially the district is in excellent shape.

The principal construction in Atlanta and the other southeastern cities is in apartment houses, school buildings and office buildings or stores, and the result of this is a demand for brick that is keeping the plants in this district operating at their greatest capacity, or close to it, something unusual for this time of year. Present indications portend slightly higher prices if anything, certainly no declines.

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A. S. T. M. PROCEEDINGS PUBLISHED

The proceedings of the 25th Annual Meeting of the American Society for Testing Materials has been published and is now available to members and others who desire a copy. The volume contains committee reports, new and revised tentative standards and technical discussions and papers.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

A Referendum on Trade Associations

THE National Chamber of Commerce has just distributed to its membership a report containing recommendations and propositions on the activities of trade associations. These propositions will be voted upon by organizations represented in the National Chamber of Commerce, such as trade associations and local chambers of commerce. The voting will be done some time between the present and April 12.

Trade associations in the clay products business exceed the usual number for any single industry. Moreover, most of the associations in this industry have been highly developed and refined so that they give to producer and the public a service of mutual benefit. However, the opportunity for trade associations to realize the full possibilities of service to the public and plant operator alike, will be jeopardized unless the referendum meets a favorable vote on each proposition.

The value of a trade association to its membership and also to its industry will be augmented or curbed according to the vote of the various chambers of commerce on this matter. The clay industry particularly needs associations that will be permitted to carry on the legitimate activities that are being subjected to vote in the chamber of com-

merce referendum. Whether or not you are a member of your respective trade association you will be affected by the decision.

Every clay products manufacturer who is a member of his local chamber of commerce, is urged to familiarize himself with the propositions of the referendum and when the matter is up for a vote to urge that the various recommendations and propositions be accepted.

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Stock Up Your Dealer Now

CAR SHORTAGES are beginning to affect the distribution of clay products. In several parts of the country shipments of brick and tile are being curtailed and it is generally understood that the traffic conditions are becoming worse each day. This is especially true of the section of our country east of the Mississippi. Moreover, products going east are finding it harder to secure shipments than those going west.

It is undoubtedly a fact that the railroads are improving their equipment daily but this improvement does not seem to balance the increased demand for equipment. At least the service reported by many clay plants in Connecticut, Pennsylvania, and Ohio especially, is quite poor.

In the month of January this year,

Chicago, it is said, used 10,000,000 face brick as compared to 5,140,000 in January, 1922. This means that Chicago dealers will be stocking up their yards with larger quantities and at an earlier date than usual. We believe this same situation holds true in most other cities.

Dealers last year enjoyed good business and their stocks of building materials were consequently low this winter. It must be apparent that with a greater volume of building going on this year than usual the dealers have never had the opportunity of catching up. It is obvious that because of the low reserves and the steady activity, dealers will be purchasing greater quantities of clay products during the next few months than normally.

Scarcity of commodities, whatever the cause, usually brings about higher prices. But higher prices for building materials would soon put an end to construction activities and should be avoided. Therefore, it is hoped that the rail situation will not create a scarcity of clay products.

The outlook with regard to shipments, however, is unfavorable this spring and early summer. The manufacturer of clay products will be required to protect himself by loading up his dealers with as much of his material as possible and as soon as he can.

¶ If your plant burned down tonight what would you do tomorrow? If you rebuilt it how would you do it?—This is the proposition John H. Gloninger had to confront. He decided to build a new factory incorporating ideas that would make the plant more efficient and the quality of the ware higher. These ideas he had accumulated in his many years of experience.

How he built a most modern plant altho restricted to a very small area by railroad tracks and hills is a story, well illustrated, that will appear in the next issue of Brick and Clay Record.

¶ What quantity of clay products is distributed thru the dealer? How much profit is he entitled to? What potential market has he in prospect for you?—These and other vital questions are incorporated in a report of an investigation of the dealer problem. In this report will be summarized the opinions of about 75 dealers from all over the country.

The article will cover sewer pipe, drain tile, fire, face, paving and common brick. You will find it of the greatest interest and very instructive.

Taking Referendum on Associations

Chamber of Commerce Gathering Vital Information from Industry and Commerce—Movement of Great Importance to Trade Associations

TRADE ASSOCIATIONS are the subject of a referendum submitted by the Chamber of Commerce of the United States to its membership. Organizations representing practically all industries and branches of commerce form an important part of the Chamber's membership.

The activities of trade associations have been carefully gone into by a special committee appointed by the Chamber a year ago. The personnel of this committee was: Philip H. Gadsen, formerly president of the American Railway Association, Philadelphia, Pa.; T. S. Adams, economist, of New Haven, Conn.; F. R. Babcock, lumber operator and dealer, of Pittsburgh; George A. Bass, brick manufacturer of St. Louis; Charles J. Brand, former vice-president and general manager American Fruit Growers, Pittsburgh; Henry S. Dennison, manufacturer, of Framingham, Mass.; James R. McColl, manufacturer, of Pawtucket, R. I.; J. D. A. Morrow, formerly vice-president, National Coal Association, Washington, D. C.; Alfred Reeves, general manager National Automobile Chamber of Commerce, New York, N. Y.; George Rublee, lawyer, Washington, D. C.

Propositions Subjected to Vote

This committee has now presented a report containing recommendations. The report and its recommendations are the basis for the propositions submitted to a referendum vote. The propositions, upon which the Chamber's membership will vote "yes" or "no," are:

"Because of numerous useful and important functions of obvious propriety trade associations should exist for each important branch of industry and commerce.

"A trade association should have such a membership that it can be representative of the industry in connection with problems affecting the general advance of the industry.

"A trade association should be prepared to consider all problems affecting the general advance of its industry or branch of commerce.

"Trade associations should continue free from special forms of government control.

Statistics to Be Gathered

"Statistics of capacity, production, stocks and sales should be collected by a trade association for its industry or branch of commerce.

"Statistics of actual prices in closed transactions should be collected by a trade association for its industry or branch of commerce.

"Any interpretation of statistics or other comment which could induce or facilitate concerted action on the part of members should be omitted by a trade association.

"Statistics of capacity production, stocks, sales and prices a trade association should make as available to the public and to government agencies interested in following the course of industry and commerce as to members."

It is pointed out in the Committee's report that "there is a long list of functions which trade associations perform in the interest of their members and of the community at large. These functions are illustrated by the standardizing and safeguarding of the quality of goods, the reducing of waste in manufacture and distribution, the promotion of trade, both domestic and foreign, and the upbuilding in scores of other ways of industry and commerce. That such functions are beneficial

alike to the public and to individual enterprises can admit of no question.

Problems of Associations Greatly Diversified

"The performance of functions of this nature typifies trade associations and marks them off from other forms of united endeavor in commercial or other fields which are not before the Committee. Activities are not uniform with all trade associations. The great diversity of problems before the numerous branches of a highly complex industrial and commercial structure causes an equal diversity in activities undertaken by organizations representing these different fields. One association may be spending large sums of money in China in an effort thru education to improve the quality of the raw material upon which all of its members depend. Another may be devoting equal effort to scientific tests of the durability of the product its members produce. A third may be seeking to prevent losses thru frauds which only as a result of association activity can be brought to light and placed before public authorities.

What Is a Trade Association?

"Whatever the form activities may take, however, a trade association is distinguished from other organizations by the extent of its representation of its field and by its purposes. A trade association may be defined as an association formed in a field of industry or commerce with a membership so representative that all problems pertaining to this field can be adequately presented for common consideration and solution and with the purpose of developing this field so as to have the enterprises in it conducted with the greatest economy and efficiency. Other organizations with a membership which is less representative and other organizations with their attention limited to a portion of the problems in a field may be highly meritorious, but they would not be properly described as trade associations and should use titles and other descriptions which will accurately indicate their character.

Some Characteristics

"The title of trade association should be kept for use by those organizations which are sufficiently representative of an important branch of industry or commerce to speak for it with authority and which undertake to consider all questions of general application to the industry.

"In the United States membership in a trade association is voluntary. It has its basis in the willingness of individual enterprises to join with their competitors in dealing with problems which do not grow out of their relations to one another as competitors, and which affect the general advancement of the industry or branch of business. If errors are made thru inclusion in an association's activities of matters bearing upon competition among the members and there is violation of statutes dealing with competition there is, of course, liability under these statutes exactly as there would be liability if the association committed legal wrong in any other direction, such as concerted action in violation of legislation imposing taxes.

The possibility that a trade association may err by violating a statute no more justifies any attempt on the part of governmental authority to control trade associations in all of their activities than the possibility of illegal acts on the part

of individuals warrants like supervision over all their actions. Such supervision would inevitably restrict the freedom of action of trade associations in meeting the problems which they exist to solve. These problems involve activities regarding which no legal question has ever arisen and the solution of which promotes the public interest by aiding economic advancement. The essential quality of a successful trade association is its ability in any contingency, no matter how sudden, to concentrate immediately the most expert thought and the best experience of its industry to devise the measures that are to be taken. For freedom of action in trade associations, as in the business enterprise of an individual, there can be no substitute.

Status of Industrial Plants

"As much recent discussion of trade associations has centered around their statistical activities, your Committee calls attention to some fundamental principles. The business enterprises which take a raw material of limited or no direct utility in its original state, turn it into commodities of high utility and place them where they meet the needs, the comforts, and the luxuries of the purchasing public, or the market, are creators of economic wealth and upon their success depends the welfare of the community. Each separate enterprise, when equipped with the knowledge, skill, and resources to make what the market will buy, must answer three questions before it can participate in this creation of economic wealth. They are:

What does it cost to produce the commodity?

What is the extent of the demand?

What price will be obtained?

Bankruptcy Follows Lack of Knowledge

"Unless these questions are clearly answered, no enterprise is warranted in beginning operation or in hoping to serve the community in a steady and beneficial way. Without definite answers, there can only follow in time bankruptcy on the part of the enterprise and industrial confusion and loss for the community. If the economic welfare of the community as a whole is to be maintained, if labor is to be steadily employed, if trade is to go on, if business is to expand, if money is to circulate freely, if the general credit structure is to be maintained, then every business enterprise which has a proper place in the community must have the fullest and most definite information on the subject of production, markets and prices. For the wholesale or retail distributor such information is as important as for the manufacturer or the enterprise which converts the raw material into a form in which it is available for manufacture. It is equally advantageous to the general purchasing public that the business enterprises should have this full and exact information; for the purchasing public is, in one capacity or another, an integral part of the manufacturing and distributing process taken as a whole. In the nature of things, the public cannot be divided into one group of producers and distributors and a separate group of consumers.

"The information required may be stated specifically as:

Quantities on hand,

Quantities in process,

Quantities sold, distribution and prices,

Quantities in unfilled orders.

"That such information is not only desirable but necessary is recognized in the various public exchanges and in the government's crop and mining reports. Statistics from these sources appear daily in the newspapers, because of their general news value, but they do not include data for great fields of business enterprise for which like statistics are equally necessary.

"To supply this defect some trade associations have included in their activities the operation of a department of statistics for the speedy and economic gathering and distributing of information regarding their commodities. The slow, expensive, and sometimes questionable methods that individual manufacturers and merchants have employed to obtain vitally needed information on production, markets and prices are superseded by

the open, direct and economically efficient procedure of trade associations. That the courts and investigations made by the Secretary of Commerce have disclosed a small minority of associations which may have misused statistics in carrying out a scheme to restrain trade we believe in no way invalidates or discredits legitimate collection and distribution of trade statistics by associations. On the contrary, your committee is confident that proper statistical activities on the part of trade associations not only do not run in contravention of laws respecting restraints of trade, but actively encourage and develop trade.

This summary of a report prepared for the National Chamber of Commerce by a special committee and to be subjected to a referendum among its membership, should interest readers of Brick and Clay Record because of the direct bearing it has upon them. Every manufacturer of clay ware should familiarize himself with the theme of this report. The many trade associations in the clay industry will find that the propositions contained in the referendum cover points that they are vitally interested in.

It is only proper to mention in this connection that much credit is due George A. Bass, president of the Hydraulic-Press Brick Co., St. Louis, for the time and effort that he contributed in the preparation of this report. It is largely due to his efforts that many of the points of prime importance to trade associations are included in it.

Rules Which Are Recommended

"In considering statistical activities of trade associations and the value of statistics to business enterprise and the public, the Committee has formulated several rules which are ample in statement and which it submits as recommendations:

Reports of members to their association should be accurate and sufficiently complete to prevent misconception;

As distributed to the membership, the statistics should not be accompanied with any interpretation or other comment which could induce or facilitate concerted action on the part of members;

All statistics regarding prices should be confined to closed transactions, and should not refer to pending transactions or future transactions.

Data Must Be Accurate to Be Valuable

"The reasons for these rules are obvious. If members do not make the data they supply accurate they defeat the purpose of trade statistics; for the figures will mislead as to the facts, instead of stating them. If statistics are properly collected and compiled, they set out the facts upon which each

person who uses them can base his judgment as to the business course he should pursue and they thus fulfill the purpose upon which the Committee has earlier placed great emphasis. It is no part of the function of a trade association to attempt to obtain concerted action by advising members how to conduct their own businesses. Price statistics for closed transactions show facts; the function of collecting and distributing these is consequently reportorial.

"It has been contended in some quarters, that summaries, average prices on typical lines, or figures grouped together according to territorial districts are sufficient. The Committee believes, however, that for the use of the members of most trade associations more detailed information is necessary, and can see no objection to the distribution of such information to the members and to the public.

Make Statistics Public as Soon as Issued

"The statistics which the Committee has under consideration present the facts of industry and commerce. Such facts should be made available to the public and to all government agencies which may be interested in following the course of industry and commerce. Your Committee, therefore, recommends that every trade association that collects statistics should, immediately upon issuing the statistics to the membership, furnish them to the public press and to the Department of Commerce, the Federal Trade Commission, the Department of Justice, and such other government agencies as may have use for them.

"Summarizing the preceding discussion, the Committee believes that trustworthy information concerning capacity, production, stocks, sales, and prices is essential to the effective operation of industry and trade under competitive conditions. The voluntary reporting of such information to trade associations and the subsequent publication or dissemination of such information in a manner which makes it available not only to contributors but also to consumers and to the public generally is beneficial alike to the field of business and the public and does not constitute a restraint of trade."



CLAY USED IN PREFERENCE TO CONCRETE

The city council of Chillicothe, Mo., has decided to build the Bull Thunder Storm Sewer of that city with clay segment blocks instead of concrete or "lock joint" material after a lengthy discussion over the merits of the two materials. A representative of the W. S. Dickey Clay Co. of Kansas City was present at the meeting of the council and showed a one-reel picture of sewer construction with material sold by the Dickey company. D. L. Haley, representing the Evans & Howard Fire Brick Company of St. Louis and others were before the council at the same time. The council said it would have preferred to have advertised for bids under each material but as this was not permissible under the law it was decided to make the segment blocks the specification of material. Work on the sewer will begin as early as possible in spring.



BILL PROVIDES FOR FIRE PROOF CHIMNEYS AND ROOFS

State Senator Tout, a Republican, of Archie, Mo., has introduced a bill in the Missouri legislature, that is designed to increase the sales of clay products and especially tile roofing and linings. The bill provides that on and after the passage of the bill all chimneys that are built in any business house or hotel in any incorporated village or town, in the state of Missouri, shall be lined thruout with a tiling made of fire clay. Old chimneys, which are being repaired must have such linings in the parts that are to be rebuilt.

The bill further provides that all such new buildings be covered with incombustible material and not to have wooden roofs, and when necessary to take off the old roof, the new roof shall be built of incombustible material.



A COMPANY WITH VISION AND FAITH

Every time the clay industry goes forward a step either in manufacturing or merchandising, it means that the battle against competition is made easier. It is gratifying to see that the men of the industry are coming more and more to have vision and faith in the future of the industry. Brick and Clay Record is always glad to report these forward strides in the industry. It is with pleasure, therefore, that we reproduce herewith the cover of a folder recently sent out by the Lancaster (Pa.) Iron Works which describes an advertising campaign which that company is conducting for the brick manufacturer. This is advertising of a nature which is ahead of anything that has yet been attempted in the clay industry. The company recently started a campaign of advertising in the Architectural Record, a paper which goes to architects, to advertise the fact that Auto Brik are "common brick with face brick characteristics." In this advertising, the Lancaster Iron Works publishes the names of the manufacturers using the Auto Brick machine and advises



A Page from the Folder Which the Lancaster Iron Works Is Sending to Brick Manufacturers. It Calls Attention to the Advertising Campaign Which That Company Is Conducting in Architectural Record

architects to get in touch with these manufacturers and inquire about their brick.

The folder is sent to brick manufacturers for the purpose of acquainting them with the campaign in the Architectural Record and to urge them to take fullest possible advantage of this advertising. They say: "Put your shoulder to the wheel and get all possible advantage from this advertising. We are putting your product in a class by itself. We are spending our money to create a demand for your product and we want you to reap the benefits of our action."

This is excellent advice and brick manufacturers would certainly do well to follow it.



This Brick Home Is to Be Shown All Over the Country as the Main Feature of the Movie Entitled "The Great Idea"



A Scene from the Film Which Shows to What a Large Extent Brick Is Being Benefited by This Publicity

A. S. T. M. CONSIDERING SEWER PIPE PROBLEMS

Committee C-4 on Clay and Cement Sewer Pipe of the American Society for Testing Materials, has placed a number of problems in the hands of sub-committees for consideration as follows:

Sub-Committee I on Sampling and Physical Test Requirements is considering the practicability of testing pipe at the place of manufacture.

Sub-Committee II on Chemical Requirements is considering the need for including chemical requirements in specifications, both for clay and cement-concrete sewer pipe, especially where the pipe is to be used in sewers where conditions are more or less harmful to the materials of which the pipe is made.

Sub-Committee IV on Methods of Testing is giving consideration to the methods of testing pipe that will be required should chemical requirements be found necessary.

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BOOK ON FLOW OF GASES IN FURNACES

A book entitled "The Flow of Gases in Furnaces" has been published by John Wiley & Sons. The book treats of the development of the flow laws of heated gases and the application of those laws to the rational design of furnaces. Its author is Professor W. E. Grounje-Grjailo.

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PERFECT HOME FILM ALMOST READY

The accompanying cut shows a scene taken from "The Great Idea," a five-reel motion picture film. This film, as readers of Brick and Clay Record will recall, was spoken of in the November issue under the head, "Teaching Folks How to Acquire a Home."

The first step in the film portrays the problems confronting the renter and which are determining factors in making him a prospective home owner. Other scenes show the buying of the lot, the consulting with the architect and contractor, the choice of materials and their subsequent use in the building.

One can scarcely pick up a periodical nowadays without finding something about this remarkable film. The producers of the film say that they expect to finish it about the middle of March. It will then go into active circulation and be available for use by any individual or association desiring to encourage home ownership. Plans are already underway for assisting the local supply dealers to tie up to the showing of the film so that they may be benefited.

There is no idea of profit in connection with the distribu-

tion of this film. The only charge that is contemplated is a purely nominal one to cover the expense of keeping the films in circulation.

Details and full information may be obtained direct from the Atlas Educational Film Co., 1111 South Boulevard, Oak Park, Ill., who are the producers of this film.

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MAY CHANGE NEBRASKA FREIGHT RATES

Nebraska state freight rates are now on a uniform distance basis from all shipping points in the state. The Interstate Commerce Commission in the recent case of "Ballou Brick Co. et al. vs. A. T. & S. F. Railway Co. et al.," 77 I. C. C.—4 ordered the carriers to establish distance rates from Sioux City and Sargent's Bluffs, Ia., to Nebraska destinations, one-half cent lower for the first 100 miles than the Nebraska state rates. The order also provided that on joint hauls over two or more lines of railroad, the distance scale should apply with the addition of one cent per 100 pounds. The minimum weight of the Interstate Commerce Commission's scale is 60,000 pounds.

At a hearing held February 20 by the Nebraska State Railway Commission there was some disagreement among the shippers represented whether the 80 per cent. basis on common brick now in effect was desirable. Generally speaking, manufacturers making only common brick favored the rule, and manufacturers who desired to ship mixed cars of common and face brick or common brick or hollow building blocks, opposed it.

C. E. Childe and W. S. Whitten, representing the Omaha and Lincoln Chambers of Commerce, urged the State Commission to establish on Nebraska brick the same rates as are applicable on interstate traffic from Sioux City without waiting for a final settlement of the points now in dispute before the Interstate Commerce Commission regarding the interstate rates. They pointed out that the Nebraska manufacturers would be injured if lower rates are allowed to remain in effect on interstate brick even temporarily waiting a final decision on disputed points.

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HOLYOKE GETS NEW COMPANY

The Holyoke (Mass.) Brick Co. has been incorporated with an authorized capital of \$100,000. The incorporators are Patrick J. Kennedy, Jr., Henry H. Parsons and William C. Mullen, all of Holyoke, Mass. They will manufacture brick and clay products.

Business in 1923—Good or Bad?

Col. Ayres Says First Part of Year at Least Will Be Good—Labor and Transportation Shortage Will Stop Prosperity—High Cost May Stop Building

Leonard P. Ayres

Vice-president Cleveland (Ohio) Trust Co.

Editor's Note—This article by Col. Leonard P. Ayres is from a talk made by him at the convention of the Common Brick Manufacturers' Association at Cleveland, February 7, 1923. Mr. Ayres is a noted authority on building conditions and has gained considerable prominence as a business forecaster of rare ability. If you read this article you will gain information which will guide you in establishing your business policies for the ensuing year.

ALL OF US are interested in the prospects for business for 1923, because the prospects for building are inextricably a part of the prospects for business.

If we look about and try to size up the business situation at the present time, the one fact which is evident to all of us is that the tide of business is rising. We know it in our own affairs. We know it when we open the trade or business papers and see what is said of what is happening in all lines of business. We know it even if we look at the reports of the stock market, and I think all of us know it for a different reason from all of those. We know it if we compare February of 1923 with February of 1922.

If we try to analyze why business is better now than it was a year or 1½ years ago, we shall say, after careful thought, that the business upturn came because there existed in the beginning of 1922 four great shortages in this country.

Great Building Shortage

The first was a great and general shortage of building construction in American cities. That shortage had been accumulating since the outbreak of the war or certainly since 1915 or '16. When the world turned its energies to warfare eight years ago, one of the first results was that orders began to pour in on American industries and American energy and American capital became very active, indeed, in supplying the wants of Europe, and so it happens that during those years when Europe was at war, and later on when we went into war, capital and industry and labor were putting their efforts not into the normal efforts we need in making buildings, but into those special activities that were called into being because of the great conflict overseas.

Shortage Reached Peak in 1918

So, a shortage of building began to accumulate. Then we went into the war in 1917 and that shortage became more acute. It became greater in 1918, and in 1918 the Government stepped in and said, except for certain kinds of essential buildings, there couldn't be any activity at that time, and building went down until it reached a low level; but, instead of building becoming immediately active

after the war, something unexpected and unlooked for took place.

All over the world people found they had been doing without things that ordinarily they wanted and stocks of goods of all sorts were low, and then we went into that great inflation, the activity of 1919 and 1920, which had for its object the making up of those shortages and still we didn't build.

And so, more shortage accumulated and there became a definite, actual shortage of building construction in American cities that was great and serious, so great and so serious that by the beginning of last year, 1922, careful computations indicated that in the American cities as a whole there was an accumulated shortage in buildings that was equal to 2½ years of normal construction. That is to say, we had accumulated during those six or seven years of warfare and the results that followed that warfare a shortage of buildings so great that the whole building industry could work at 25 per cent. above normal for ten years before making it up.

Much Will Not Have to Be Made Up

Now, that, of course, is a theoretical rather than an actual shortage, because some of it doesn't have to be made up. We did use old buildings, that normally would have been replaced, another year or two or three or four years longer than under normal conditions we would have used them, and so, not all of that 2½ years' shortage has to be made good now, and yet it turned out with the buildings that when the time came to replace them, it was an acute necessity that could no longer be postponed, and that was the situation in American cities in the spring of 1922.

So, we began in 1922 with a great building boom, a boom that had to come just as soon as relative prosperity returned to this country and a boom that had for its object the making good of that shortage or building deficit in our cities.

Now that the year has come to a close and we have entered

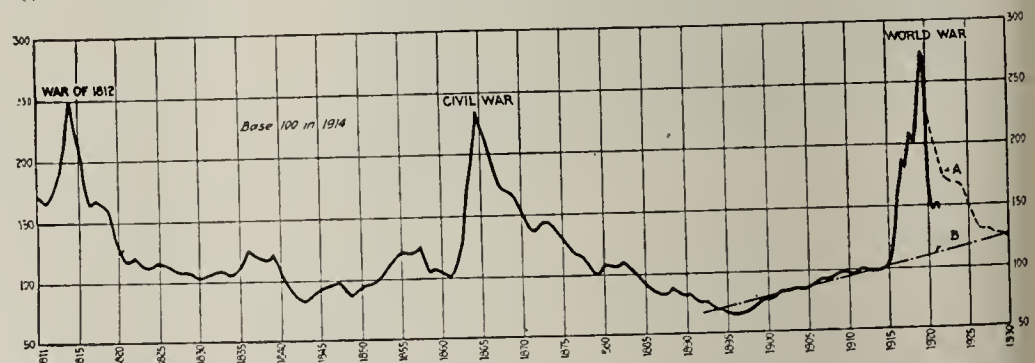


Figure 1. Trend of Prices Since 1811. Line "A" is a Composite Curve of the Two Previous After War Price Declines, Showing That We Have Reached the Present Level of Prices Four Years Faster Than After Previous Wars. See Figure 4.—From Architectural Forum

a new year, we can look up the figures and see what we really did in construction. Those figures are impressive. They show for 50 of our leading cities that the value of building permits was well in excess of two billion dollars for last year. Even in the boom years of 1919 and 1920, when men paid almost any price for a new building, the total in

those 50 cities was about a billion dollars. In other words, the construction carried thru in 1922 was worth twice as much as in those previous high years and three times as much as during the normal years which we call pre-war years.

That is the situation we face in 1923—a year behind us of great activity; a shortage behind that is still very considerable, a shortage that has been in part made good during the past year and still a situation in which it is perfectly clear

Mr. Ayres says that the present period of prosperity will come to an end finally because of a shortage of railroad transportation and a shortage of labor. "There is every indication that we are in for a serious and sustained shortage of railroad transportation," Mr. Ayres says. Speaking of the labor situation he says:

"As competition becomes more active, the efficiency of the workers goes down, and by and by you reach the point where you are paying the working man more than he produces, and then profits disappear and the period of prosperity is over."

that if business goes forward with activity 1923, at least in its early stages, will set up even new high records of building activity.

Will Business Be Active in 1923?

That carries us back then to the consideration as to whether or not business will be active during 1923, and if we want to look intelligently at that situation, we must, I think, cast our eyes backward and consider the fluctuations in business activity that do take place in this country.

Most of us can remember out of our own experiences the condition of general business over the last quarter of a century or something like that. We can all remember very clearly—many of us almost too clearly—the collapse that started in the spring of 1920 and went down into the great depression of 1921, and since then the recovery. If we wanted to go back and analyze it, we should know as far as we wanted to trace the records in the past that business had gone forward in swings like the waves in an ocean—not regular; you can't say they will come every seven or six or five or three years. But you can say that one thing sure about business and those business tides is that they will never stay long at a single level and that when things are very depressed you can be sure they will soon recover, and when they are over-active you can be sure they won't stay there, and when they are at some intermediate position we might call normal, you can be sure they will move in one direction or the other from the normal position.

Business Cycle Now Upward

Now, we are at one of those characteristic changes in that series of cycles that is carrying us up to a period of prosperity. We are well along up in that period of recovery and, as I said in the outset, it seems the reason we went into it was that during the depression of 1921 there existed in this country four great shortages, of which the first and most important from the point of view we are considering this morning was a great and accumulated shortage of building construction.

The second of those shortages, I think, was one of railroad equipment, for during these same years the railroads of the country had not been buying the numbers of new cars or

locomotives or rails or bridge materials or of any of the other things that the railroads consume in great quantities that they normally require, and so, at the beginning of last year, there was a great accumulated shortage and the railroads had not been able to buy because they had not been making, during those war years, sufficient profits, but finally they had to buy, and railroads that were making reasonable gains began to put all the money they could spare into new equipment and those that were in straightened circumstances put in as much as they could get hold of. So, our iron and steel industries began to become more active because the railroads are the best customers of the iron and steel industry and take about a quarter of the output.

Shortage of Automobiles in 1922

So, we have a great and fundamental industry more active—the iron and steel, especially those portions that relate to railroad equipment, and railroad equipment was not only active last year, but it is active as we enter the first months of 1923 and it promises to continue being active, at least for as many months ahead.

And the third great shortage was one that I suppose few of us would have recognized as such and I take it that most of you gentlemen would disagree with me in calling the third a shortage, but I believe we entered the year 1922 with a great shortage of automobiles. The result is that during the past year, for month after month, the automobile industry produced in excess of a quarter of a million cars each month. Back in 1915 there weren't that many cars turned out in an entire year, but this past year it seemed there was no end to the buying power of the American public for new automobiles, and that shortage has not yet been made up. The automobile industry is entering this year of 1923 with production schedules which, if they are carried out, will make new high records and carry those figures still higher than they went last year.

General Merchandise Stocks Depleted

And the fourth shortage was a great and general shortage of a thousand different kinds of ordinary merchandise that is sold from the shelves and over the counters of the retail

Speaking of conditions in Europe, Mr. Ayres says:

"The ordinary man living anywhere thruout the country who has been planning to buy or build a house and has been making preparations for doing it, probably is going ahead and build that house this spring whether France occupies the Ruhr or not. I don't believe that any development overseas short of development of the most serious and sudden sort can stop short this building boom."

merchants in every city and town and cross roads store in the country. That sort of a shortage develops after prices have been falling, because it is one of the universal human characteristics to buy when prices are rising and not buy any more than we can help when prices are falling.

Prices fell from the spring of 1920 to the spring of 1922, and during that long span of months the retail merchants thruout the country bought only what they had to and in so far as they were able, they satisfied the needs of the trade from the stock on hand. When they got thru with the stock on hand they took what the jobber and wholesaler had, but

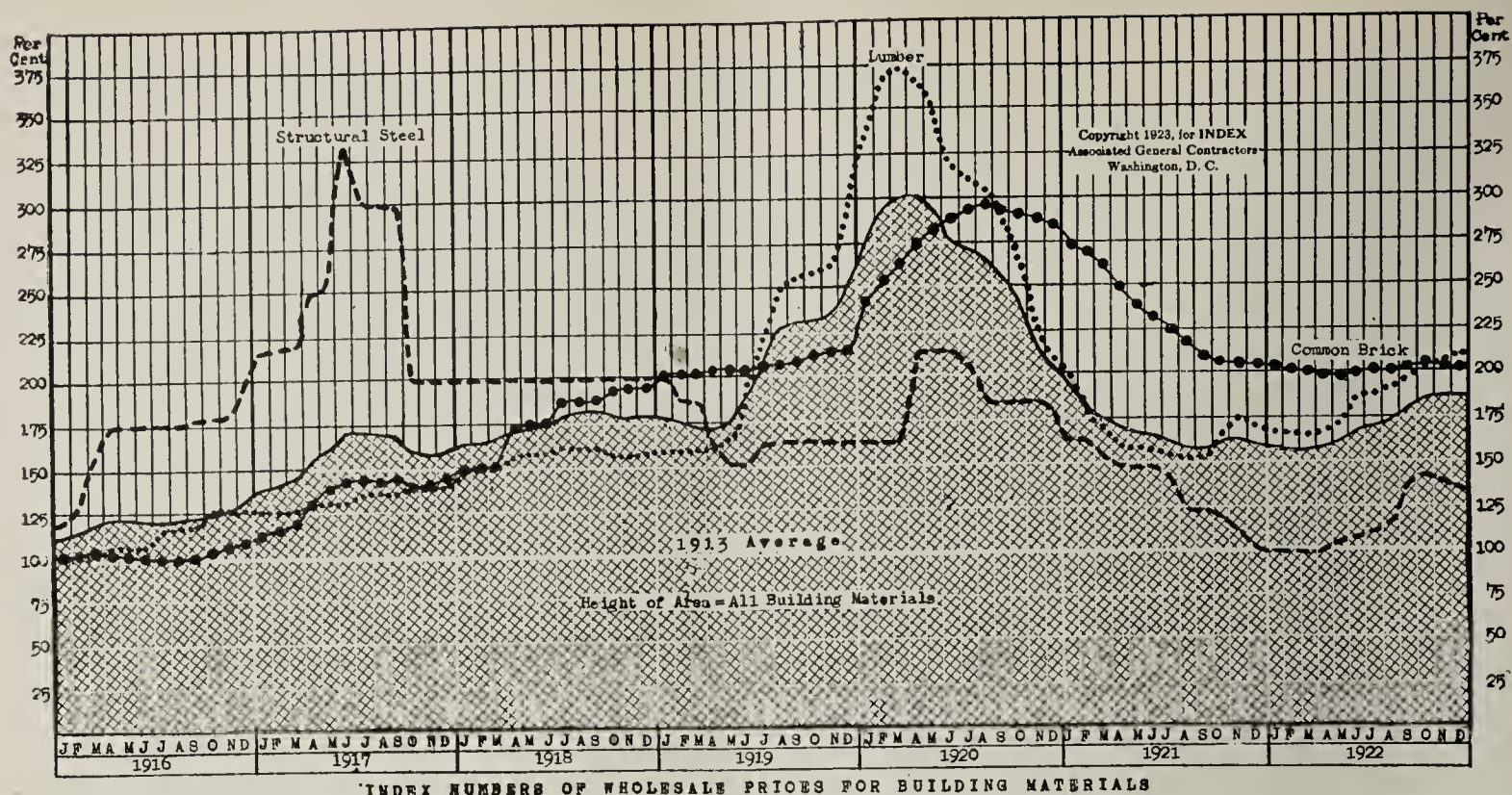


Figure 2. This Chart Shows How the General Trend of Building Cost Is Moving Upward. Col. Ayres Says That Higher Building Costs May Stop the Building Boom.

month by month the stocks ran down and down until, when we got to the beginning of 1922, there was nothing like as much miscellaneous material and merchandise of commerce on hand as there had been two years earlier.

Merchants Again Stocking Up

When we went thru two years of falling prices merchants bought as little as they could. When prices began to rise, a little more than 12 months ago, all began to stock up and buy for current needs and stock up a little ahead in the hope that by buying at present levels they would be able to profit later on. That process is going on thruout the country at an accelerating rate.

To recapitulate, I think we entered 1922 with four great shortages in this country, and they were a shortage of building construction, railroad equipment, of trucks and automobiles, and a shortage of general merchandise.

During 1922, then, business from month to month has improved and the tide has risen and as we enter 1923 it is still rising, and it is rising at an accelerating rate. How long will it keep on? All of us would like to know that. What are the prospects for this present calendar year of 1923?

What Is Europe's Influence?

Men here pause when they read in the papers of conditions in Europe and say, "What will happen if one or more of those countries blow up or a real war begins over there?" So, we have those influences at work that are not constructive and on this side still continuing influences that are actively constructive.

Now, let's see. The ordinary man living anywhere thruout the country who has been planning to buy or build a house, and has been making preparations for doing it, probably is going ahead and build that house this spring whether France occupies the Ruhr or not. I don't believe that any development overseas short of a development of the most serious and sudden sort can stop short this building boom. It seems we can be perfectly confident that at least during the early part of 1923 building will be not only active, but exceedingly active. The thing that militates against that is that the cost of building is going forward unduly rapid and in time that will check building if that keeps on. The rail-

roads are still far, far short of having caught up with their urgent needs. The orders that they are now placing are very great orders and we may be pretty sure that at least during the early part of '23 the contracts and orders placed for railroad equipment will be at a high level.

Automobile Industry Still Expanding

The same is true, not quite so definitely true, in the automobile industry thruout this part of the country. Plants are starting the year with construction, with building schedules which, if carried out, would make the industry this year set up new high records and I think we may be pretty sure that during the first part of this year at least the automobile industry will go ahead at this very great pitch of activity on which it is now operating. I should not want to be so sure that that would be true of the last part of the year.

In the matter of general merchandise once more, I think, we may fairly reach the same conclusion, that that movement is not yet thru and that at least for the months immediately ahead of us, we will see an increase in activity, a sustained business output that will contribute toward continuing the period of prosperity in which we are.

"Tight" Money Often Ends Prosperity

What, then, is going to stop it when it does stop? Formerly as we have gone thru these periods of business recovery ripening into business prosperity, an end has eventually come to the improvement because of a shortage of credit, and business gets more active, pay rolls expand, first, because you take on more men and then because you raise wages and stocks of goods on hand have to be increased. Men build extensions to their plants and that takes money, and all sorts of additional activities have to be brought along as business becomes truly active, each one calling for more funds.

So, in previous periods, these different kinds of additional demands for money and credit have finally pulled the interest rate up to a point where business no longer showed the same profit, where money cost too much, where that developed into what we call a credit stringency and then we had a crisis and sometimes a panic and went down to another period of decline.

But that isn't going to happen this time. There is too much available credit in the country and the amounts owned by the banks are so great that credit could keep on expanding and expanding, construction could become more and more active and industrial production greater and greater for a long time without an end coming to it because of a shortage of money.

What, then, will bring an end to it? My own guess is that it will be the combination of two influences that have not before worked in that way in this country. I suspect that when this period of prosperity comes to its termination it will be because of the combination of two other kinds of shortages. On the one hand there will be a shortage of railroad transportation. There is a serious car shortage in this country right now. It was worse last fall. It is pretty clear that it is going to be worse again this spring, and I think it is going to be worse next summer. There is every indication that we are in for a serious and sustained shortage of railroad transportation.

Shortage of Labor Impending

The other influence I suspect is going to be a shortage of labor. When industry gets more active, the first thing that happens is that unemployment decreases and disappears and then, if it keeps on getting still more active, industrial plants begin to compete for labor, and as competition becomes more active, the efficiency of the workers goes down, and by and by you reach the point where you are paying the workingman more than he produces, and then profits disappear and the period of prosperity is over.

When businesses begin to compete for labor, you may put it down as a certain thing that your period of prosperity is done. I don't think that is going to happen, because too many business men learned their lessons of that last period too acutely to repeat them once more only three years afterwards, and yet I suspect that some time in the future, when we can look back and size up what happened during this period, we are likely to say, "The prosperity that was with us in 1923 finally ended, not because of any shortage of credit or money but because of the combination of the shortage of rail transportation and of labor."

Coal Strike Not Likely

Up to a few weeks ago I thought it probable that those two shortages would be complicated by still another which

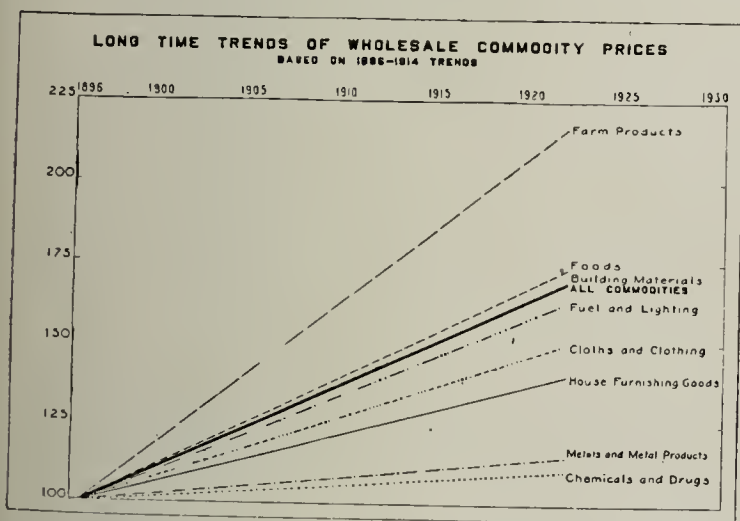


Figure 3. Prepared by Federal Reserve Bank of Boston, Based on Commodity Price Index of the U. S. Department of Labor. Note How Closely Building Materials Follow Composite Commodities.

would have been most serious and will be if it still occurs—I now think it won't—and that would be a shortage of coal. Should that come and be complicated by these other two shortages, then I think that combination would put an end to improvement in business.

So, as we look forward, it seems to be that if we are prudent in reading the signs of the times, we shall size up the situation somewhat in this way:

Business recovered in this country, went forward from a condition of deep depression to one of hopeful recovery and finally to one of real prosperity because there were in Amer-

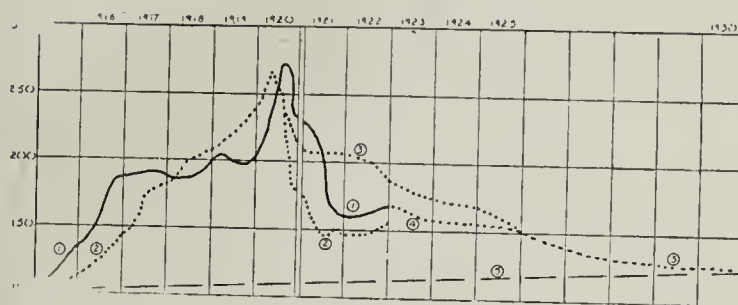


Figure 4. This Chart Is an Interpretation of Figure 1 from 1915 to 1930. Line 1 Shows Trend of Cost of Building with Dotted Line 4 a Logical Interpretation of Future Trend. Line 2 Is Trend of General Prices with Broken Line 3 Showing Trend Toward Normal if at Same Speed as After Previous Wars. Line 5 Shows Normal Building Cost Increase if Uninterrupted by Economic Disturbance.—From Architectural Forum.

ica great shortages, of which we have reviewed four—building construction, railroad equipment, automobiles, and general merchandise.

First Part of 1923 Will Be Good

Nineteen twenty-two was a period of general business recovery in which the industry, the commerce and the workmen of America were engaged in making up these shortages; that during this past year they have gone forward far toward making them up but have not completed that task; that we enter 1923 with those processes actively under way and with every promise that there will be continuing during the months immediately ahead of us further activity in building, sustained activity in the fundamental industries dealing with iron and steel, further prosperity still for the automobile industries, and in general for the hundreds of thousands of interests of manufacturing and commerce that provide the articles that are sold over the counters in the stores thruout the country. And, further on, that the time for us to be cautious and to be sure that our own business enterprises and activities are well protected will be the time when business begins to show signs of being seriously affected on the one hand by a shortage of rail transportation and on the other by a shortage of labor which shows itself in rapidly rising wages and in a great increase in industrial disputes. That increase in strikes, in disputes, in demands for more pay, I think, is going to come back to us. I think it is not so very far ahead of us.

Judge the Future Wisely

Many years ago there was a great poet who wrote, "There is a tide in the affairs of men that, taken at its flood, leads on to fortune," and if he meant, as I take it that he did, taken at full tide it leads to fortune, of course he was wrong for it is not taken at full tide that the tide of business leads on to fortune; it is taken at its ebb, when down but coming up, that it so leads on, and the man who can realize the tide is at its ebb but coming in and who has the courage and foresight and energy to undertake his business expansions and enterprises at that time and ride on with them, is the man who has placed his feet upon the path that does lead on to fortune.

It is too late to do that in this business tide, for it is part way in; it is a long ways in; it is leading on toward the flood tide that is ahead, just how far ahead we do not know. But now, to change the figure, is the harvest time. This is the time for all of us who are able so to do to take advantage

of this high tide still rising of business activity and to garner what we can of the gains that are possible in periods such as this and by and by, when we judge it is flood tide, perhaps when some of these things that I have talked about begin to be definitely apparent to us as we read our daily newspapers, then all of us who are wise will take care that we are able to get off either on to the beach or on to the pier and not be carried out again by that falling tide when it recedes, as ultimately it certainly will.

* * *

ADAMS MADE CHAIRMAN OF SOUTHERN GROUP

A large number of Southern face brick manufacturers were represented at a meeting of the Southern Division of the American Face Brick Association at Chattanooga on January 25. Business was reported as being above the average and some manufacturers stated that their January business was larger than any previous January. Officers of the Southern

division for 1923 are as follows: Chairman, A. B. Adams of the Key-James Brick Co., Chattanooga, Tenn.; vice-chairman, O. A. Harker, Jr., Dixie Brick & Tile Co., Puryear, Tenn.; treasurer, John W. Sibley of the Birmingham (Ala.) Clay Products Co. The next meeting of the Southern Division will be held at Nashville.

* * *

BILL TO RESTRICT IMMIGRATION FURTHER

A bill further restricting immigration quotas to two per cent. of the 1890 figures has been reported favorably by the House Immigration Committee. If this bill becomes a law the number of aliens permitted to enter this country will be cut more than half. In its report, the house committee disagreed with the claim of industry that its labor supply was being cut off and stated that at present there are 1,500,000 workmen involuntarily unemployed. The two per cent. bill shuts off the main source of labor for the steel industry.



Manufacture and Use of Diatomaceous Earth

A LARGE DEPOSIT of diatomaceous earth or kieselguhr is mined near Lompoc, Cal. It covers several square miles, and ranges up to 700 feet thick. The bed contains many folds, but was apparently laid down horizontally at the bottom of a fresh-water Miocene sea. Kieselguhr consists of the siliceous skeletons of diatoms, of which over 2,000 varieties have been identified at Lompoc.

The deposit is owned and worked by the Celite Products Co. H. S. Thacher of Los Angeles is general manager and E. B. Starr of Lompoc is plant manager. This company has a mill for treating a part of the product at Lompoc, which is about four miles from the quarries. At the present rate of production, the supply should last for several centuries.

Uses of Kieselguhr

The principal uses of the kieselguhr are: (1), sawed brick for refractory purposes; (2) compressed refractory brick, which in quality is between the sawed brick and ordinary fire brick; (3), ground product, used as filtering material at sugar mills; (4), light-weight filler in concrete, used instead of rock aggregate in some Government work; (5), insulation purposes; (6), automobile polish, silver polish, diluting talcum powder, and so forth; (7), nitroglycerine absorbent in some grades of dynamite.

The character of the material varies in different parts of the bed and only selected parts where the overburden is light, are quarried. Also, certain parts of the bed are used for specific purposes. After cleaning off the overburden, the diatomaceous earth is quarried by means of a channeling machine developed by the company. Cuts are made across the face four feet deep and four feet apart. The largest part of the production is used for insulating brick, which are sawed on the ground from the blocks cut by the channeling machines. The machine used for sawing the brick was also developed by the company. The material desired for grinding is quarried, after channeling, by pick and shovel and loaded by hand into horse-drawn wagons and then hauled to a drying yard. The brick are hauled to a drying yard in light tram cars. After sun-drying, the brick are hauled to the railroad, and the other product to the mill in motor trucks.

How It Is Handled

At the mill, the sun-dried diatomaceous earth is fed by hand into an impact pulverizer, which is moved along the

bottom of the storage bin. The pulverized material is drawn thru galvanized iron tubing by an exhaust fan to the main building, where it is packed for shipment in bags. The unbroken single diatoms are desired for filtering and some other uses. The dust, consisting of the finer particles and broken diatoms, which does not settle in the bins of the main building, is drawn into a bag house where it is filtered out of the air. This material is used for polishes and other similar purposes. All crushing is done dry.

The Kieselguhr is nearly pure silica and has the capacity of absorbing several times its weight of liquids. Dr. Herbert Insley, petrologist, U. S. Bureau of Mines, examined some of the samples under the microscope and made the following report:

Made Up of Minute Skeletons

"This material is very light in weight, due in part to its great porosity. Under the microscope, the material was found to be made up almost wholly of the tests or skeletons of diatoms. These tests are composed of practically pure silica. The silica is evidently amorphous, for there is no evidence of double refraction between crossed nicols. Most of the skeletons were unbroken. Complete skeletons more than three-tenths of a millimeter in greatest dimension were not observed, altho some of the skeletons of which fragments were observed must have been at least seven-tenths of a millimeter in length. Disc-like diatoms containing hexagonal perforations or depressions and long, slender spine-like diatoms are very common."

Photomicrographs made by Dr. Insley show considerable fine dust and many sharp-edged particles.

The deposit is damp when first exposed, but during the summer months, the air is very dry and the wind blows almost continuously, hence the surface is soon dried. Since the kieselguhr is very light, the dust is easily picked up by the wind.—U. S. Bureau of Mines, Reports of Investigations.

* * *

BRICK MANUFACTURING IN GREECE

Among the manufacturing industries in Macedonia, a province of Greece, the building industry is prominent with 13 plants employing 385 workmen in the production of tile, brick, mosaic, slate and lime. The mosaic and tile factories with the exception of one in Verroia, are all in Saloniki. The lime kilns are in Vladovo and Naoussa.

Building the Dryer Over the Kiln

By Use of Automatic Equipment Few
Men Are Required to Operate Plant
—Entire Plant Is Under One Roof

Alexis A. Zakharoff, C. E.

Editor's Note—The author of this article formerly operated a brick plant in Russia. At the time war broke out he was building a new plant of the type he describes and therefore speaks with authority on his subject. He has been in America for quite a while and is of the opinion that the system he describes could advantageously be adopted by many American factories. While Brick and Clay Record is not ready to endorse his views, the article does merit publication as a matter of information and as a possible stimulator of ideas.

THE PRINCIPLE of placing the dryer directly over a continuous kiln to use the radiated heat has not as yet found general practical application in the United States. The subject has hardly been touched upon in technical literature. However, I firmly believe that this principle, based upon the utilization of heat wasted and radiated from the kiln during burning process is absolutely sound and worth consideration in the planning of any ceramic plant.

The increased use of this idea in pre-war times in such technically developed countries as Germany and Sweden clearly demonstrates that this type of factory arrangement should be given earnest consideration by manufacturers in this country. There are, of course, many prejudices against lifting green brick above a kiln, especially when considering the strict conditions imposed by labor unions and also the increased expenditure of power for the hoisting equipment. But, as it will be pointed out later, these objections are illusory and this system has many advantages in comparison with many of the arrangements generally acceptable.

Little Labor Required

By means of mechanical devices, the labor involved in the system under discussion is limited to a minimum, and the expenditure for power is insignificant compared to the power

required for ordinary operation of a plant. By placing a dryer above a kiln the radiated heat from the kiln can be utilized. Moreover, cost of handling brick from the point of molding to the kiln can be diminished considerably.

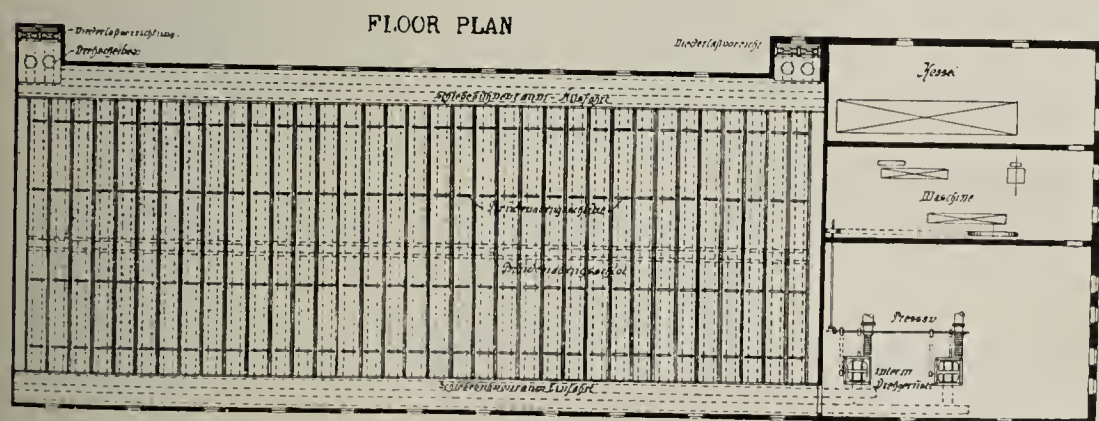
Practically all of the essential operations—molding, drying and burning—are made in one building under one roof and, of course, such an arrangement is more economical and efficient in comparison with the ordinary type of plant where the dryer is located at a point separate from the kiln and machine department. One building with a continuous kiln at the central part of it takes less space than three separate ones, and in figuring out the cost of the structure it must be taken into consideration that the roof surface will be considerably decreased. For this reason the whole structure can be built more permanent, with better insulated walls and more stable tracks than in three separate buildings. One can see that the distance of transporting brick from the cutting table to the chambers of the kiln would be considerably decreased. The drying operation also would not depend on the condition of the weather, which is an important point in regard to regularity of output of a factory.

Use Hoffman Kiln with Dryer Above

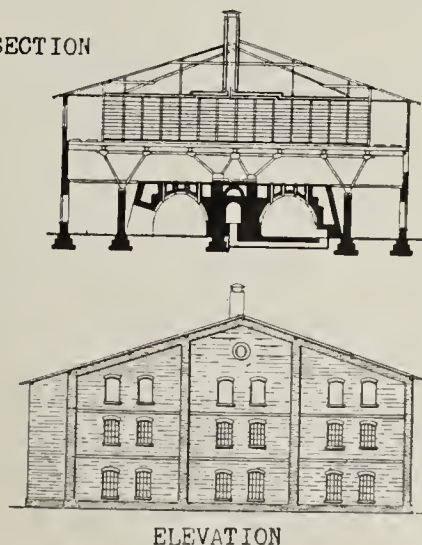
A plant of this type has a continuous kiln of improved Hoffman type of 12 chambers, with a one-story dryer above the kiln. The whole building is about 200 feet long and 80 feet wide. The dryer has a capacity of probably 150,000 brick, and the drying period continues about five or six days. The length of one drying corridor-tunnel is about 65 feet, and loading and unloading can be done from both ends of the tunnels. As soon as the drying chamber is filled the ends are covered by special shields. It is entirely practical that by means of mechanical devices described below, the whole transport of a day's output, say, 25,000 to 30,000 brick, from brick machine to dryer and from dryer to kiln, could be carried out with two or three laborers and a boy.

The other point of interest is this, that on account of shortening the track and by means of automatic devices, the losses

Floor Plan, Cross-Section and Elevation of Plant Having Dryer Built Above Continuous Kiln. In the Floor Plan the Rooms on the Right Are from Top to Bottom: Boiler Room, Engine Room and Machine Room. The Small Projections at Each End of the Dryer Contain the Lowering Apparatus. The Brick Enter the Dryer from the Machine Room and Exit on the Opposite Side.



CROSS-SECTION

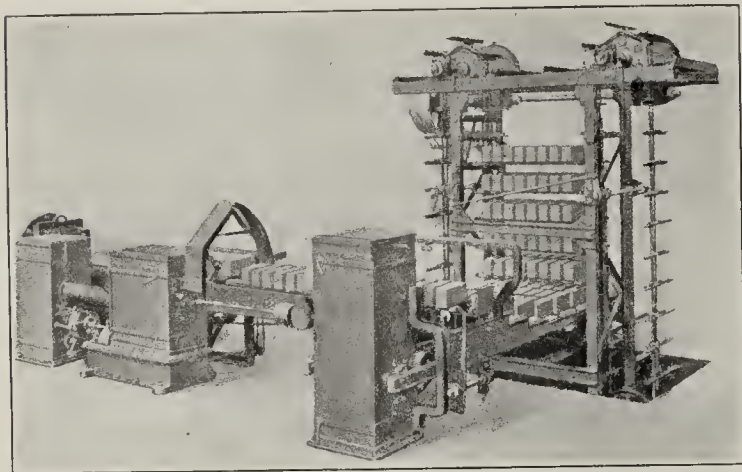


due to breakage and damage, unavoidable in transporting green and dried brick, will be considerably reduced.

Besides taking advantage of the proximity of the power plant to the dryer, the exhausted steam can be utilized for drying and in this way decrease the drying costs.

No Power Needed to Draw Heat

The movement of hot air is naturally upward. With the ordinary type of dryer, it is necessary to draw hot air thru narrow and frequently curved horizontal ducts. To do this



Machine Which Automatically Places Brick from Offbearing Belt Onto Pallets.

considerable power is involved. Thus it is obvious that the dryer over a kiln is advantageous from this point of view.

One objection to locating a dryer above a kiln has been the condensation of moisture on the inner surface of the roof. However, in modern plants this difficulty is removed by better insulation of the roof with patented materials and by means of efficient outlets.

In Sweden the application of the combined dryer and kiln is very popular. The abundance and low cost of timber has enabled Swedish manufacturers to build very elaborate and complicated systems in three or more stories, situated above a continuous kiln. The Swedish system of transport consists of automatic elevators and special lifting cars. The green brick are placed on wooden pallets which rest on the projections of an automatic elevator.

Transportation of Pallets Automatic

When the elevator lifts the pallets to the level of the dryer, a lifting car is pushed toward the elevator and the arms of the car are so arranged that each pair can be run beneath each pallet with plenty of clearance. When the arms are well under the pallets, they are simultaneously lifted upward by pressing a lever of the car, and a batch of pallets is lifted off of the projections on the elevator. Thus by one single movement a whole batch of pallets, carrying 80 to 120 brick, are removed from the elevator and transported to the drying corridors. By releasing the lever on the car the pallets of brick are lowered onto the projections of drying racks, and the lifting car is free to return for another load.

The same car can be used for taking out dried brick from the drying racks, and carrying them to the kiln or storage. Usually the lifting car, when emptied of green brick, is taken to the nearest rack containing dry brick, where it loads itself and conveys a batch of pallets with dry brick, which are conveyed to a transporter and are carried by gravity to the level of the kiln.

Clever Devices Lower Operation Cost

There the pallets are taken by use of swivel cars with four to five pairs of arms on each side, on which the pallets are unloaded from the elevator. The distance to travel is

comparatively short. This operation is usually done by one of the setters or helpers.

One can see that by means of ingenious devices the cost of transporting brick in the dryer can be made very insignificant. It requires only two men to transport brick from the belt to the pallets, and two men for handling the lifting cars. The following approximate figures will enable one to calculate the cost of producing brick by this method.

Cost of a Plant

We assume that a plant having a yearly production of about 5,000,000 brick operates 250 days with a daily output of 20,000 brick for eight hours work, or 120,000 for a week of 48 hours.

A. Cost of building, including the coal fired continuous kiln, dryer, factory building, pallets.....	\$ 85,000
B. Machinery. Excavator with cableway about 300 ft., mixer and one set of double rolls, auger machine with brick cutting table.....	16,000
C. Transport and apparatus for green and dried brick. Complete equipment.....	7,000
D. Shafting and belting, water supply, heating, motors and engine, sundries.....	27,000
Total.....	\$ 135,000

Cost of Production

Number of men required: One at the excavator, one helper, one at the mixer, one at the cutting table, two at the automatic lifting cars, two pallet boys, four setters, four kiln unloaders, three burners, two cleaners and coalers, one greaser and fitter, one foreman.

Wages (weekly):

Foreman	\$ 45
12 skilled hands.....	360
7 unskilled hands.....	175
3 boys and helper.....	60

Total.....\$640

This sum divided by 120,000 brick would be \$5.33 a thousand.

Coal for burning and supplementary drying, one-fifth of a ton per thousand brick, at \$8 a ton.....\$1.60
 Power: 60 kw. for eight hours, 480 kw.h.; 10 kw. for 24 hours, 240 kw.h. Total, 720 kw.h. at four cents = \$28.40
 per day and night for 20,000 brick, or, per thousand:.. 1.50
 Amortization interest, excepting 10 per cent. from cost of factory, equals \$13,500, or divided by 5,000,000 brick is, per thousand..... 2.70

Brick Would Cost About \$11

Thus the total estimated cost per thousand brick would be about \$11, not including cost of administration, taxes, interest on working capital, wear and tear on machinery, oil and repairs, loading from yard and unforeseen expenses. These items vary a great deal according to local conditions, but are usually covered by additional charge of from \$2.50 to \$3. It is self-evident that this data might be changed according to local conditions.

From personal observation of different brick plants of the type described herein, the author has found the following practical hints to be valuable with regard to best production methods.

It is advisable to construct the outside wall of the building well insulated, and with a minimum number of windows necessary for illumination. Do not count on side windows as a means for cross draft. Improve circulation in dryer by means of fans, outlets and ducts. All lines for transport cars must be near the outside walls, and by no means in the middle, otherwise current of hot air going in the direction of

the least resistance will not pass around the drying ware. In the upper stories of several stories of dryer, drying of the brick will be very slow (often 10 to 14 days). It is not advisable to make the dryer outside of the plan of the kiln, as such dryers work inefficiently.

Practice in Germany

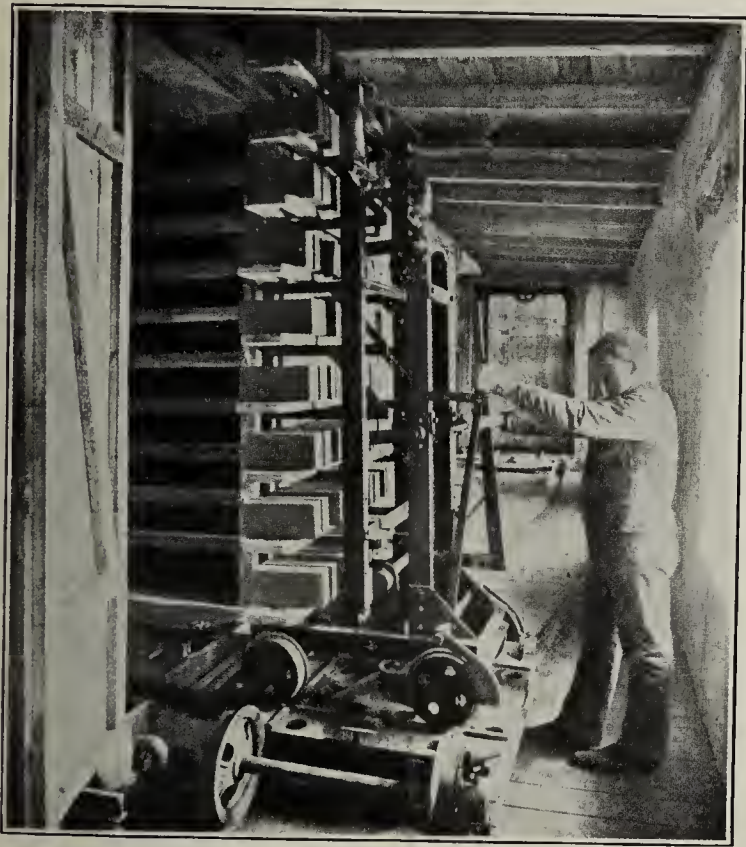
In Germany they usually construct a one-story dryer above the kiln, and the whole plant is built substantially with fire-proof material, brick curtain walls and steel trusses, upon which the dryer is constructed. All drying tunnels are divided by well insulated partitions. These contain steam heating pipes for supplementary systems in drying. Each tunnel has efficient vents, and after loading can be switched off from the whole scheme. A one-story dryer in most cases is preferable.

In drying by hot air the most economical drying is under the highest temperature allowable for drying ware. It is obvious that in a one-story dryer there is considerably more heated air and better ventilation. Moreover, the compactness of the whole scheme facilitates better equipment of the dryer by supplementary steam heating and the utilization of exhaust steam from the power house.

A plant of the type described in this article is suitable for brick and different lines of building material, especially for wares comparatively light in weight, such as roofing tile, drain tile, and so forth. Such wares can be placed in a dryer in many tiers, and the drying gives excellent results.

Almost Everything Is Automatic

In connection with this method of fabrication, there is an interesting device for automatically conveying the green brick from the cutting table onto pallets, as shown in an accom-



One of the Automatic Lifting Cars in the Dryer. The Pallets Are Set on Racks in the Dryer by This Machine.

panying illustration. The device excludes handling of brick from the moving belt of the cutting table, and the brick are actually touched by hand only during the setting of the kiln.

In conclusion, I can add that the method described above of combining the dryer with the kiln is worthy of consideration in planning modern ceramic plants for heavy ware. No doubt in many instances it would be the most efficient and economical solution of the problem.

WHO EXPORTS RADIAL BRICK?

William Henry Wardwell, consulting engineer at 628 Union Avenue, Montreal, Can., has written to Brick and Clay Record stating that he has a client who is interested in the importation of radial brick for chimney construction. Any manufacturer who is interested in this should get in touch with Mr. Wardwell.

CHANGING A. S. T. M. PAVING BRICK SPECIFICATIONS

Committee C-3 on Brick of the American Society for Testing Materials is taking up the question of changes in the present specifications for paving brick. Revised specifications have been drawn up, but it is probable that no definite action will be taken until after the meeting of the Permanent Committee on Recognized Sizes and Varieties of Paving Brick, of the U. S. Department of Commerce.

Committee C-3 is also engaged in securing further data on the properties of concrete brick. Plans are under way for the procuring of such data at the Lewis Institute Materials Research Laboratory.

During the past few months Committee C-3 has addressed letters to about 80 city engineers thruout the United States, requesting that they transmit criticisms or suggestions which will make the brick specifications applicable to their particular problems. Responses were not as conclusive as it was hoped they would be, and it would appear that a decided effort should be made to bring the specifications of the A. S. T. M. before those who are using brick, and suggestions are welcome which might prove effective to this end.

* * *

FREIGHT RATE MEETING AT ATLANTA

On Thursday, March 15, 1923, a conference will be held at the office of the Southern Freight Association in Atlanta, Ga. General rate adjustments between southern points will be considered and discussed. All clay products manufacturers who are interested are invited to attend the meeting.

* * *

OPTICAL METHODS IN LABORATORIES

"Optical Methods in Control and Research Laboratories" is the title of a 56 page booklet published by the Adam Hilger, Ltd., London, Eng., which was received in the offices of Brick and Clay Record. In the preface of this book it states: "The optical methods dealt with in this book are those employing spectrosopes (or spectrographs), spectrophotometers, refractometers, and polarimeters. No detailed descriptions of these instruments or their techniques are included, but in each case references are given to sources of information on these points.

"We have already published an essay which deals in a broad and general way with the subject of light radiation in relation to the constitution of matter. There is a tendency to lose sight of the deeper significance of physical properties when they are merely used for the identification of substances and other technical purposes."

The price of this book is quoted as 1s 8d. Those who may be interested in this publication can secure further information from Brick and Clay Record, book department.

* * *

KENTUCKY MEETING POSTPONED

A meeting of the Kentucky Clay Products Association will be held either late in March or early in April, a date having been set, but later found to be impracticable because some of the members planned to attend a meeting at Atlanta on March 15 on freight rates.

Accounting Simplified

G. W. Greenwood

Treasurer United Refractories Co., Dunbar, Pa.

CHAPTER VIII.—ELIMINATING THE ACCOUNTS RECEIVABLE LEDGER

THIS CHAPTER DIFFERS from others in that it is not based on actual experience of the writer. But the process of eliminating the Accounts Receivable Ledger is easily understood, altho it has not apparently been generally adopted.

One reason for its not being more generally used is a fear that records may easily be lost, the attitude for years concerning loose-leaf records. Any loss must be guarded against, and as will be shown, it can be.

No Accounts Receivable Ledger Needed

It will also be shown how one can have complete control over his accounts receivable without a ledger, so that the question becomes one as to simplicity of operation.

Is it easy to understand? Does it save time and work? Each must determine the answers for himself. Let us state at the beginning, that the elimination of the Accounts Receivable Ledger does NOT form a part of the Simplified System thru use of the Operating Register. But the Operating Register will continue to function whichever method is used for handling the accounts receivable.

Except in the hands of thoroly qualified bookkeepers, the omission of this ledger is not recommended by the writer.

Handling the Invoices

A carbon copy of each invoice we send out is placed in an open file. When payment is received for one or more of these invoices, they are transferred to another file, a closed file this time, containing only copies of paid invoices.

The total of the unpaid invoices in the open file at the

One should not wait until after a fire before taking out insurance, unless the premium is prohibitive.

How to Go About It

We will therefore discuss the cost of insurance where this ledger is omitted, leaving the reader to judge if the premium is too high.

Let us suppose that we are just starting in business, and that the current month's sales are the first we have made.

We make in addition to the copies required by the customer, two additional copies: one is filed chronologically and is referred to only in the case of emergencies; the other is placed in the open, unpaid accounts, file. Each customer has a separate folder. The two file copies of the invoices should be in different colors. At the close of the month, suppose we find in the John Doe file three invoices.

We make for him a regular monthly statement somewhat as shown in Figure 10.

But in the meantime, having arrived at the total charge sales from original sources, we have debited Accounts Receivable in the Operating Register, and have credited Sales with this total.

List All Statements

We make an adding machine list of all statements and see if their total agrees in this case with the amount shown by the Accounts Receivable control in the General Ledger. Of course we do not wait until the General Ledger is posted, since we can tell from the Operating Register what this charge will be.

In taking off the adding machine list, there are advantages in sub-totaling at the end of each letter of the alphabet.

Having thus verified the total of our statements, they are ready to be mailed.

Three Copies of Statement Needed

In addition to the copy for John Doe, we make two more: one is filed with a similar copy of every other statement for January, and the entire set for all customers, alphabetically arranged, is filed for possible reference later. The other copy of John Doe's statement, made out on a much wider sheet, is placed in John Doe's open file, together with the three unpaid invoices. It is not attached to them, however.

The three statements should be on paper of different colors.

During February, checks are received from John Doe in payment of the first two invoices. A notation to this effect is made on the copy of the statement in the open file, and the two invoices are removed to John Doe's closed file. (See figure 12.) We may mark the date of payment on the face of each invoice, but this will not always be practicable.

A Good Example

Suppose during February three more shipments are made. At the close of the month we make up a new statement.

The statement for February may begin with the total for January, less the amount paid. Or it may simply begin with the January unpaid invoice, followed by the February invoices, as shown in Figure 11.

Statement		
Brixton, Pa., January 31, 1923		
John Doe		
IN ACCOUNT WITH		
Brixton Brick Co.		
Jan.	2	\$ 198.75
	10	237.17
	26	136.24
		<hr/>
		\$ 572.16

Figure 10.

close of each month must agree with the amount shown in the Accounts Receivable Control in the General Ledger.

But what if they do not agree? And what if an invoice is filed in the wrong place, or is not removed when it is paid, or should be lost entirely? It is not enough to state that in some particular office this has never happened yet.

Where this method can be used, it has a decided advantage: because it shows clearly what the company's claim against John Doe consists of. But this is not always practicable. In some cases, it would require the listing of quite a number of invoices; or, the credit might be a payment on account, the proceeds of a note, or a contra account for material purchased from John Doe, so that the credit would not cancel any particular invoices.

Balancing With Operating Register

In such a case one must begin with the previous January balance followed with a statement of February credits, or he

Statement	
Brixton, Pa., February 28, 1923	
John Doe	
IN ACCOUNT WITH	
Brixton Brick Co.	
Jan. 26	\$ 136.24
Feb. 5	213.47
14	181.45
23	228.90
	<hr/>
	\$ 760.06

Figure 11

must make a complete itemized statement of all debits and credits.

When all February statements have been made up, we make an adding machine list of them and compare their total with the amount which is slated to appear in the Accounts Receivable Control in the General Ledger. If there is a difference, we can check all the credits stricken off, or otherwise applied, with the credits listed in the Operating Register, following this with a comparison of the items charged with the items as they appear on the original list from which the invoices were made, and from which the charge was made to Accounts Receivable in the Operating Register.

Handling the Statement Files

When the total amount of all the statements has been harmonized with the amount which will be shown in the General Ledger, we mail out John Doe's February statement, place a copy in his open file, place another in the alphabetical file of statements for the month, and transfer John Doe's January statement from the open file to his closed file of paid invoices.

Exceptional cases will naturally arise, such as the payment in February of a February invoice. One way of handling this is to place a memorandum in the file with the paid

invoice. It is not a good idea to transfer the invoice prior to closing the Accounts Receivable for February, since we may need to refer to this self-balancing debit and credit entry in locating an error.

Much Posting Saved

All these precautions may not appear necessary to those using the system, but in the writer's opinion they cannot safely be omitted.

We have in this manner saved a lot of posting, but on the other hand we have had some extra filing. Also, when we wish to know what volume of business we have had with a particular firm, we cannot summarize a large number of invoices as quickly as we can scan a ledger sheet. A ledger sheet, containing 50 invoices, covered by contra credits, and filed away in a transfer ledger, takes up considerably less room than 50 copies of the invoices, with scattered notations as to their payment instead of having the credits in orderly array. If we wish to know the largest credit ever extended to John Doe, we can of course tell this from the file copies of the statements for each month, but we can also determine this from the ledger.

Complete Control Possible

There is no question but that we can have complete control over the situation in the above manner. If an invoice or a statement were lost from the open file, the loss would be discovered and a new copy of the missing document could be easily made.

But there still remains the question as to how much

Statement	
Brixton, Pa., January 31, 1923	
John Doe	
IN ACCOUNT WITH	
Brixton Brick Co.	
Jan. 2	\$ 198.75 2/14/23
10	237.17 2/26/23
26	136.24
	<hr/>
	\$ 572.16

Figure 12

time, if any, one saves by the elimination of the Accounts Receivable Ledger.

The use of a card ledger is equivalent to that of an Accounts Receivable Ledger, differing in form only and not in principle. There is no connection between the use of the card ledger and the disuse of the Accounts Receivable Ledger.

CHAPTER IX.—THE CASH RECORD

WHEN WE SPEAK OF CASH and a Cash Book, we refer to Cash—not to checks, notes receivable, trade acceptances, drafts, or anything else except currency. The present custom of using a Cash Book to handle bank deposits and checks is apparently inherited from early times, before busi-

ness gradually changed from a cash basis to one in which other forms of payment were employed, but without any change in the name of the book in which the transactions were recorded. We still encounter the term "Bills Receivable" which is a relic of the time when actual bills, or invoices,

were accepted and used as notes and trade acceptances are now used.

When to Omit "Cash" Column

In many businesses practically all material sold or purchased is paid for by check. The actual handling of currency is in small sums for minor transactions. If entries of cash received and paid in such cases were carried in the Operating Register, the only other columns affected would in general be the "EXPENSES" columns. Under these circumstances it is well to omit the "CASH" columns and to make one single summary at the close of the month, crediting to the various accounts the cash received and charging properly the cash paid out, the difference being either charged or credited to Cash in the "GENERAL LEDGER" columns. There will be occasional checks drawn to replenish the petty cash, or deposits made if a surplus is accumulated. Such checks or deposits are entered in the "BANK" columns and "GENERAL LEDGER" columns under the date they occur, and are of course to be omitted in making the summary of cash received and paid at the close of the month. Thus the Cash account in the General Ledger agrees at the close of the month with the amount of currency in the petty cash drawer.

Consider These Questions

In some cases the petty cash account is restored each month to a fixed level, in which case the difference is either covered by a check to make good a deficit, or is deposited if there is a surplus; in either case there is no entry to Cash, the only entry to this account being when the cash was originally placed in the petty cash drawer.

In determining whether or not one should carry a pair of "CASH" columns in the Operating Register, the following questions must be considered:

- Are many sales made for Cash?
- Are many Accounts Receivable paid in actual Cash?
- Are many purchases made for Cash?
- Are many Accounts Payable paid in Cash?

If the answer to all these questions is "No," then the only Cash transactions would in general be those affecting the expenses. In this case one should make one entry at the close of the month, just as he enters a salesman's expense account, omitting the "CASH" columns.

But if the answer to one or more of these questions is "Yes," then in all probability one will require this pair of columns.

Don't Make Extra Work

Some firms make a practice, when checks are received, of charging Cash and then crediting Cash when these are deposited. There is no logical reason for this, and it makes extra work.

Checks should be deposited promptly. If desired, they may be entered at once, charging the Bank, making a deposit slip and attaching the checks to it in case it is not convenient to deposit them in the bank on that day.

In this connection, we may call attention to the desirability in all cases of keeping duplicates of deposit slips, and of inserting on the duplicate, if not on the original, the name of the company from whom the checks are received, or other information concerning the source of deposit. Most banks furnish deposit slips on request, padded in two colors for this purpose.

ASKS HOW SYSTEM WORKS WHERE COMPANY HAS SEVERAL PLANTS

I have been reading with much interest your articles "Accounting Simplified," in the Brick and Clay Record, and have installed some of your ideas in one of our companies the first of the year. We are, however, contemplating combining several plants into

one company, and were wondering how your system would work out in this respect. Would we have to have a separate ledger for each plant, and would we also need separate sales books for each plant?

While "Accounting Simplified" is being developed primarily from the standpoint of a single plant, as a matter of fact the more complicated one's accounting requirements, the greater the advantages which so far have been found to follow from the use of the Operating Register.

In the case of several plants, you will wish to use a cut sheet, trimming off the two pairs of columns from the right hand side, which also at the same time cuts off the descriptive space from the left hand side. In this way you obtain 14 pairs of columns with a single descriptive space. In such cases, it is better to purchase full size sheets and cut sheets at the same time, instead of cutting the sheets by hand.

Designate Each Plant by Letter

To avoid writing the names of the different plants continually, assign to each plant or other operation a capital letter. Each will have a pair of columns for its operating expenses, but do not put Sales in these columns. In other words, do not mix up operating expenses and income from the various sources. In addition to these columns, you will require a pair for General Office, Selling, Advertising and Overhead Expenses which cannot be definitely charged to any particular plant. In general one pair of columns will take care of all these, using appropriate symbols. For instance if "q" is used to designate Advertising, then different lines of advertising can be designated by "q-1," "q-2," and so forth.

Only One General Ledger Necessary

One General Ledger, one Accounts Payable Ledger and one Accounts Receivable Ledger will handle everything simply and effectually for all operations. Of course one may use the voucher system, which is really merely a form of the Accounts Payable Ledger.

It will be advisable, however, to use different Sales Books or other Sales Records, for each plant. In this connection, it is possible to combine sales records in an interesting manner. Your local plant will of course send your general office a report of each sale or shipment. By inserting prices and extensions, together with the purchaser's order number, this report from the plant becomes your general office sales record, from which postings are made direct to the Accounts Receivable Ledger.

Convenient Record Form

A convenient form of such record, the outgrowth of several years' experience, is shown in the accompanying illustration. The sheet is perforated on the left, and is bound in a book with permanently bound alternate sheets of a different color (blank). The sheet when removed from the book measures 8½x11 inches, which is letter size. The books when received from the printer are not numbered, but before a new book is sent to the plant from the general office, it is numbered serially with a numbering machine, the blank sheets being also numbered in the same order. Then so long as one has at hand a single book of sales reports, he can take care of the needs of any plant whose book is filled. This has all sorts of advantages over the plan in which a number of books are printed with the name of each plant and serially numbered. One plant is always running out while another has quite a stock on hand.

Eliminating Printing

Originally, the name of the company was printed on these sheets, and the copy left in the book when the plant office made its report was also printed the same as the one torn out and sent to the general office. This extra printing was also eliminated.

As has been stated, prices and extensions are inserted when the sheet is received, and the invoice is made out from this information. These sales records are posted to the Accounts Receivable Ledger indiscriminately from each plant thruout the month.

At the close of the month, the sales from each plant are listed on a separate sheet, also 8½x11, giving the number and amount of each, thus:

SALES A
MARCH, 1923

710	\$ 125.00	833	\$ 233.00
711	221.50	834	127.35
712	188.00	835	213.60
.	.	.	.
.	.	.	<u> </u>
.	.	.	\$12,000.00

Suppose the plants are designated by A, B, and so forth, and that the sales for the month are \$12,000, \$10,000, and so

[illegible]

Convenient General Office Sales Record

forth. We credit Sales A in the "GENERAL LEDGER" column with \$12,000, charging this amount to Accounts Receivable (I am assuming that all your sales are charge sales, so that you will not need a "SALES" account in the Operating Register). We make this entry direct from this summary sheet, and thus have an independent check on the posting of the individual sales. We file all sales at the close of the month on an inexpensive screw post binder, with wing nuts, the sales being numbered from the bottom to the top and the summary for the month being placed on top. It is a good plan to use linen tabs to attach to each summary sheet, the month and year being written thereon.

Handling Sales for Other Plants

The sales for plants B and the remaining plants are handled in the same manner. Of course we might combine these entries, crediting Sales A, Sales B, and so forth, and debiting Accounts Receivable with their sum, but this entry to the Accounts Receivable Ledger is posted only by proxy thru the separate sales reports, so that it makes little difference.

An interesting application arises when the plants begin to interchange their products, as when material made at one plant is shipped to, and stock at, another plant for reshipment; or, when a car is loaded at one plant, shipped to another, partly unloaded and the lading then completed from stock at the second plant. The Operating Register has always handled these problems easily and simply.

"Accounting Simplified," which is a series of articles explaining a simple system of book-keeping, is now about half completed. Those of our readers who have been reading the series will by this time have had an opportunity to decide whether the bookkeeping system described contains enough merit to warrant a trial. Brick and Clay Record invites the frankest comment and criticism from its readers and would like to invite discussion on the system. The author will be glad to answer any question submitted or to clear up any doubts which have come up in connection with these articles on **"Accounting Simplified."**

MARK B. REILLY JOINS H. B. T. A.

The Hollow Building Tile Association has been very fortunate in securing the services of Mark B. Reilly, who will serve in the capacity of representative in Groups IV and VII.



MARK REILLY

which comprise practically all of the southeastern and southwestern states.

Mr. Reilly completed his grade and high school education in Gilman City, Mo., and Columbia, Mo., and later graduated from the College of Agriculture and Engineering, University of Missouri.

Mr. Reilly has been assistant at the Agricultural Engineering Experiment Station at the University of Missouri, where he tested and did research work on all forms of farming



THE STORY of King Tut is interesting because it is so old in its beginning. The folks who lived so many hundreds of years ago seem to us so wrapped in the misty gossamer of Time's mantle that we hardly think of them as people. Then suddenly under the bright sun of Egypt we find the very body of the old King himself. There is his chariot and the harness of his favorite horse thrown upon the floor. You can almost hear the whinney of the steed through the wall. The same soft nosed sort of horse that rubbed against your hickory shirt and loosened your single gallus in the days which to you seem far away—far away by Thirty years. The King's steed is far away by Thirty Centuries.

The first chapter of the story of coal goes back not Thirty years nor Thirty Hundred years but Thirty Thousand or more likely Thirty Hundred Thousand years. How we would like a glimpse of those wet, hot days when the earth soaked and sweat under a sun that shone on ferns as large as oak trees and on giant animals who nibbled those huge leaves as wisps of hay. Power and heat and energy were being stored up for the use of man who was yet to be created through the slow process of the ages.

In the last days of man's dominion there is a story of the development of modern coal mining and transportation. This story may or may not be of interest to you but we are sure there is a vital part of the story of coal from your viewpoint. It begins with the fuel in a car on your tracks and ends with its proper burning in your plant. This is of real interest to you but you do not want to always be thinking or worrying about it. We like to read stories that end pleasantly and with mutual satisfaction. It is our ambition to end the coal story for you in that way by seeing that the best coal for your use is always there for the burning. With our organization and with our very large tonnage of Indiana Fourth Vein Coal we feel that you can trust us to do this. We want to render you service continuously and to your entire satisfaction.

WALTER BLEDSOE & COMPANY

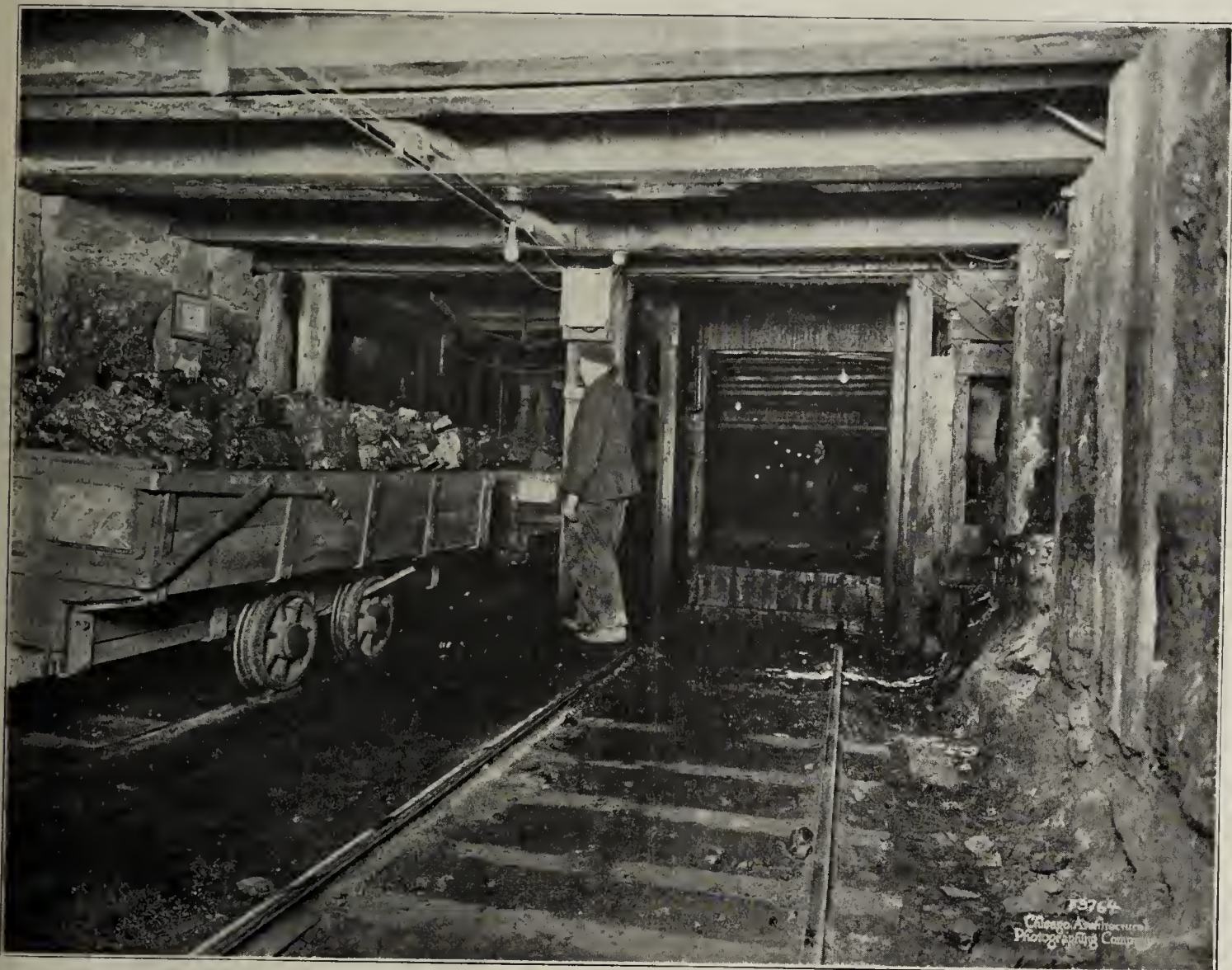
Home Office:

Terre Haute Trust Bldg., TERRE HAUTE, IND.

CINCINNATI OFFICE
Union Central Bldg.

INDIANAPOLIS OFFICE
Guaranty Bldg.

CHICAGO OFFICE
Old Colony Bldg.



A mine car of our Indiana Fourth Vein coal as it was loaded by the miner in his "room" far back in the mine. An electric motor has pulled a train of such cars to the shaft bottom and the front car in the picture has been pushed on to the "cage" (or elevator) for its journey to the surface. One Thousand of these 3-ton cars are taken up in an eight hour day at some of our mines. The chalk marks on the end of the car indicate the miner's number and the fact that he has loaded two such mine cars already that day. Note the "sprag" or stick of timber in the wheel of the mine car. This is a primitive sort of brake which is always used for stopping these cars. It is interesting to see it applied to a swiftly moving mine car. You will note that this part of the mine is lighted up by electric lights and the roof is protected by heavy "T-iron". The dinner bucket hanging on the timber is typical of the type used by all the miners and you will note that an underground artist has chalked the picture of an owl under the code of signals. He doubtless did that early in the morning in memory of his getting up long before day. The appearance of the lumps of coal on the car indicates the quality of this Fourth Vein Product.

machinery, together with the laying out of farm homes, buildings and homesteads. He was also employed by Fairbanks, Morse & Co. of St. Louis as a special representative on their farm lighting plants and water systems, and was later connected with the American Farm Bureau Federation.

Mr. Reilly's combined education and experience, both in the agricultural and engineering fields will make him an invaluable asset and all members of his territory are urged to call on him for any assistance needed.



CONCRETE TILE FAILS IN IOWA

The large system that drains the Chain lakes in Osceola County, Iowa, into an open ditch in Dickinson County is likely to cause costly litigation between these counties and the contractors who put the work in.

It is claimed by the supervisors of both counties that the tile which is laid on the line between the two counties is either defective or so poorly laid that 80 per cent. of it does not come up to specifications, and that it will cost at least \$60,000 to put it in condition.

The county drainage engineer of Osceola County went into the district last year, accompanied by the engineers from Dickinson and Clay Counties, and took a camera with flashlights along and took pictures of every tile for a mile, showing defective tiles and more defective placing. The bid for this drainage project was for \$225,000, and was let to the Cement Products Co., of Spencer, which sublet it to a company from Graettinger, which furnished the tile. The defective tiling, it is claimed, runs from 40 per cent. to 9 per cent. bad, the deepest section being the worst.

The joint boards of supervisors have given the contractor until April 1 to indicate a willingness to replace the tile, or court action will be commenced against the bondsmen.



The Building Situation

SEASONAL DECLINE, due to severe weather conditions, is evidenced in the construction industry in New England, and weekly contract awards are running from one to two million dollars less than in the corresponding period of 1922. The present average is from \$3,000,000 to \$3,500,000 a week.

There is a marked improvement in the line of industrial construction, with textile mill work leading all other branches of trade; contracts for brick buildings for this service since the first of the year aggregate over \$2,500,000. A number of new metal-working plants, machine shops and other factories show an investment, collectively, of over \$2,000,000 during the past 60 days.

Connecticut cities are averaging about \$800,000 a week in valuation of building permits, including all leading municipalities, mostly residential work.

New York

January construction at Greater New York broke all previous records for this month in the history of the city, aggregating \$44,549,800 in actual contract awards. This was about 22 per cent. higher than the building figures for the previous month of December, and approximately 33 per cent. more than the total for January, 1922. Of the gross amount, \$36,760,000 represents residential structures, or 83 per cent. The remainder is absorbed in business buildings, schools and other public work. The borough of Brooklyn takes the lead with a total of \$31,695,000 of the aggregate sum for the month, representing no less than 1,471 dwellings to accommodate 5,187 families.

ARTHUR BRISBANE ON R. C. PENFIELD

R. C. Penfield, president of the Hadfield-Penfield Steel Co., recently had the distinction of having himself and his work favorably commented upon by Arthur Brisbane, one of the world's great journalists. The comment made by Mr. Brisbane which is reprinted below is interesting in that it shows that brick is getting more and more into the public eye. Mr. Brisbane says the following:

"R. C. Penfield, who lives in Bucyrus, Ohio, says he has machines for making brick that will do away with 12 separate operations by hand. He also says that in Chicago, by the use of this machinery, brick can be sold 30 per cent. cheaper than they are sold in New York, altho labor is dear in Chicago.

"This interests thousands of builders and, what is more important, the whole people, who pay in rent what building finally costs.

"If this machinery is as good as Mr. Penfield thinks it is, the news is important."



ARGUMENT AGAINST 12-HOUR SHIFT

"The Twelve-Hour Shift in Industry" is the name of a book just published which contains a report of the committee on work periods in continuous industry of the Federated American Engineering Societies.

This committee, after two years of investigations of more than 40 continuous industries, including clay products, pottery and glass, found that the 12-hour day was not an economic necessity. These findings, President Harding says, represent his "social viewpoint." This volume, published by the E. P. Dutton & Co., will undoubtedly be of considerable interest to some of the larger clay products manufacturing plants.

The labor situation in the building industry at New York, quite satisfactory for a number of months past, begins to indicate a tie-up of work among certain trades, owing to employers' refusals to meet the latest wage demands.

The wholesale brick market at New York is showing the usual seasonal dullness, and with the Hudson River frozen and closed to traffic, the past fortnight has brought no arrivals from the up-state yards. From 10 to 12 cargoes only now remain on hand for immediate disposition. The price holds at \$20 a thousand for the best grade material.

New Jersey

Construction operations are continuing at high levels in the principal cities of New Jersey and January shows a decided advance over the volume of work of a year ago. Newark tops the list with a record of \$2,038,916 in the valuation of permits for the month, as compared with \$1,026,279 in January, 1922. Close to one-half of this total is represented by new apartments and dwellings, with three brick schools absorbing more than \$800,000. The January building at Trenton totaled \$84,183.

The scarcity of labor both in the construction industry as well as in clay working plants in New Jersey is growing more and more pronounced. Hardly a brick plant now operating would not employ from 25 to 50 per cent. more men if they were available. In the Raritan River section, the Sayre & Fisher Co., is being affected by the labor shortage,

(Now turn to page 448)

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stone-ware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

GEORGIA'S CLAY TO BE TESTED IN CERAMIC PLANTS

IN THE COURSE of the investigation of the kaolins, bauxites and feldspars along the right-of-way of the Central of Georgia Railway, being conducted by the United States Bureau of Mines at its ceramic experiment station, Columbus, Ohio, under a cooperative agreement with the Central of Georgia Railway, which was recently renewed for another year, the work is being grouped under three heads—white-ware clays, refractory clays and bauxites, and vitrified face brick.

In order to attempt the separation from the whiteware clays of certain deleterious materials, a semi-commercial centrifugal elutriation outfit has been devised by R. T. Stull,* supervising ceramist of the Bureau of Mines, and set up at the Columbus station. With this outfit, about 1,000 pounds of clay are washed at one time. Seven clays have been so washed and seven more are still to be washed and tests made on the several separations. The clay washer has proven very satisfactory. The most highly purified material from the several clays burns to a white body free from specks.

Homer Laughlin to Test China Clay

500 pounds of the most promising of these clays will be sent to the Homer Laughlin China Co., at Newell, W. Va., where some 800 pieces of china are to be made in accordance with pottery practice. The behavior of these clays, as to working properties, color, percentage loss, and so forth, will be tabulated.

Some clays which are unsatisfactory for casting and jiggering can be used successfully in dry-press processes; so 500 pounds of one of the washed clays is to be made into tiles at the American Encaustic Tiling Co., Zanesville, Ohio, where this process is used.

Electrical porcelain is to be made from another of the clays at the plant of R. Thomas & Sons Co., East Liverpool, Ohio. The body which is best suited for this purpose is to be worked out and prepared at the station.

Proper dewatering methods will be studied in an endeavor to make both a saving in the time necessary to refine the clay and to improve its slaking properties. In this connection arrangements have been made to have some of the slips washed by the Bureau of Mines put thru a Dorr thickener and continuous filter process. The Dorr Co. and the United Filters Corporation, are cooperating in the work.

Preheating in order to improve the casting properties of these clays, will be tried out, as a preliminary investigation

has indicated that this property can be improved by such treatment.

Great quantities of impure bauxites and bauxite clays, which have been little utilized up to the present time, are being tested for their utility as material for refractories.

Brick made from these clays and bauxites have been proved to have a higher fusion temperature than the best grade of fire brick; exceptionally hot crushing strengths and low spalling tendency. These properties, together with the large range of basicity obtainable in such refractories made from it, should insure a large application.

Tests are under way to prove whether it is not possible to use the same material for the bond as is used in the grog, since this would greatly cheapen manufacturing costs.

The bauxite grog is to be electrically sintered at the Seattle Station of the Bureau of Mines. This grog is to be used in the electric furnace refractories.

Electric Furnace Refractories

The refractories are to be tested out in electric furnace practice, and bungs for malleable iron furnaces. The refractories are to be made at one of the plants of the Harbison-Walker Co., Pittsburgh, Pa. Mechanical strength, low spalling tendency and resistance to cinder abrasion are prime requisites for this type of refractory.

The electric furnace refractories are to be tested at the plant of the Bonney Floyd Co., Columbus, Ohio, in a Heroult furnace melting alloy steel. The requisites for such refractories are high fusion point and low slag penetration.

The bung brick, which have to withstand considerable heat together with sudden temperature changes, are to be tested at the plant of the Ohio Malleable Iron Co., Columbus, Ohio.

Large deposits of feldspar not sufficiently pure for pottery purposes exist along the right of way of the Central of Georgia Railway. These deposits can probably be utilized, together with some of the white clays, for making a semi-vitreous face brick. It is the purpose of the Bureau of Mines to run an investigation pursuant to the utilization of this material.

✻ ✻ ✻

STRIKE POSSIBLE AMONG ENGLISH WORKERS

(By Special English Correspondent.)

The pottery trade in England during the past month has been disappointing. The home markets have not come up to expectations and the principal export market (the U. S. A.) has sagged considerably. Economy in costs, therefore, is the order of the day. The past month has seen a return to economy in decorative processes, and printing and lithographic mediums are now being mostly resorted to for color effects. Firms who have produced no printed goods for years now have returned to this old process. As a result engravers are very busy and printers are finding more work. This printing process dates back to Josiah Wedgwood's time but despite its comparative cheapness the pottery industry finds that it is a process not to be despised artistically. Many new developments in design by firms reintroducing the old printing methods are now foreshadowed.

* Since this article was written R. T. Stull has become Assistant Industrial Agent, Central of Georgia R. R.

One form of economical decorative process applicable to all classes of ware now being resorted to is the use of lithographic transfers. The business of making these lithographic transfers for the potters formerly was in the hands of the Germans. Since the war this has been changed, the transfers being made mostly in the pottery districts themselves.

The potters have been holding their annual "bargain sales" with a view to clearing old stocks. This has succeeded the past few weeks, and shelves have been cleared of old goods. One effect of the past month's trade depression has been to minimize the production of fancy goods, as distinct from high-class decorative pottery.

The recent prices of china products from Japan, Czechoslovakia and Germany have been such as to rule out English goods where quality is not taken into serious account. These foreign goods have been of a uniformly better quality than formerly, particularly the Czechoslovakian consignments—and it would seem that the continental European potters are striving for a higher standard in the popular priced lines. This growing foreign competition of the past month has forced the local potters to the conclusion that lower production costs are vitally necessary.

The Longton china manufacturers are feeling this foreign pressure to sell rather sharply. Despite the lifeless London pottery markets and the indifferent home demand, unemployment registers in the pottery industry indicate a decrease of some 3,000 in one week.

The industry, generally, is now concerned with production costs and the matter of wages is being considered again. In accordance with the custom of the trade six weeks' notice has been given by pottery employers and operatives in the pottery districts for wage alterations. This notice expires March 25. Preliminary notice of 20 per cent. wage cuts in all branches except sanitary fire clay has been given. In the case of sanitary fire clay the proposed wage cut is 25 per cent. The operatives, on the other hand, are demanding an increase in wages of 8 1/3 per cent. Pottery Workers' Union officials express astonishment at the potters' proposals to cut wages again. If carried into effect they will, they say, leave the operatives in a worse position than before 1914.

* * *

HONOR CHARLES A. BLOOMFIELD

A meeting of the executive committee of the New Jersey Clay Workers' Association and Eastern Section of the American Ceramic Society held at the residence of Charles A. Bloomfield, Metuchen, N. J., on Saturday afternoon, February 24, was called without the direct knowledge of Mr. Bloomfield especially to honor him on the seventy-fourth anniversary of his birth, occurring on the day following, February 25.

Mr. Bloomfield was instrumental in organizing the association and was its first president; he now acts as councilor to the organization. Following a brief business session, in which matters pertaining to the summer meeting at Trenton next June were discussed, Charles W. Crane, vice-president of the association, made an impressive address, directed to Mr. Bloomfield, explaining the honor that the association desired to bestow upon him, this being in the form of a large framed portrait, to be hung in the Ceramics Building at Rutgers' College and State University of New Jersey, New Brunswick. The picture is practically a full-sized bust, and exquisitely executed—a perfect likeness in every sense of the word. On a brass plate beneath the portrait on the frame is inscribed the following wording:

"Charles A. Bloomfield—In recognition of his services in founding and fostering the ceramic department at Rutgers' College. This portrait is presented to the department by members of the executive committee of the New Jersey Clay

Workers' Association on the occasion of his seventy-fourth birthday, February 25, 1923."

Mr. Bloomfield was quite overcome with emotion at the token of esteem, and made but brief comment in reply on that account. He expressed his deepest appreciation of the honor accorded.

* * *

ENGLISH CLAY IMPORTS INCREASE

During January, there was a decided increase in the volume of china clay imported into the United States. During January, 1922, there were 7,226 tons of china clay imported into the United States thru the port of Philadelphia, and January last this volume increased to 13,281 tons. The major portion of this shipment was for the account of Trenton, N. J., and Pennsylvania clay receivers, and a lot of it is always placed in storage when unloaded from the boats. The pottery industry takes quite a percentage of this shipping, altho no small amount of English china clay is used by the eastern paper industry.

* * *

UNITED CLAY MINES TO EXPAND

A dividend of eight per cent. on the preferred stock and one of ten per cent. on the common stock, was declared at a meeting of the board of directors of the United Clay Mines Corporation held at Trenton, N. J., according to an official statement just issued.

It was disclosed at this meeting of the board, that the company has sufficient orders on hand to keep the various mines controlled by the interest working to capacity thruout the balance of the year. Expansion plans are now being considered for the current year, and these include three properties which are to have replacement of new mining machinery and railroad switches and buildings. These plants are located in the south and southwest.

For many years this company has been specializing in clays of all characters, both at its domestic and foreign plants.

The United Clay Mines Corporation was formed in 1905 by George C. Crossley, of Trenton, N. J., the present head of the company. From a rather small beginning, the business of the company has grown during the last 20 years until its present output includes more different kinds of clays than are produced by any other clay mining interest in the United States, it is said.

Officers of the company are: President, George C. Crossley; vice-president and mines' manager, Archer Coddington; secretary, treasurer and sales manager, Chester C. Engle. Mr. Crossley is also general manager of the company.

* * *

U. S. ENCAUSTIC LOSES SIX MULES

Six mules were burned to death recently, when a large frame barn belonging to the United States Encaustic Tile Works, Indianapolis, Ind., was destroyed by fire. Eight mules were housed in the structure, but two succeeded in escaping. The entire structure was enveloped in flames when the first fire companies arrived. The barn is across the street from the tile works and the night watchman at the plant did not discover the flames until they were shooting high in the air. In the meantime some one passing the barn had turned in the alarm.

* * *

BUILDS NEW KILNS

The West Coast Porcelain Co., San Francisco, Cal., has just completed two new kilns. Orders are up to the limit of the company's capacity, and indications ahead are that not only that plant but all others in its line are going to have all they can do for the coming year.

HEWS BUILDS NEW WAREHOUSE

A. H. Hews & Co., of Cambridge, Mass., one of the oldest of the New England ceramic concerns, has erected a large warehouse in the vicinity of New York City, from where stock will be shipped to metropolitan distributors.

* * *

TO BUILD FIFTH TUNNEL KILN

The American Encaustic Tiling Co. of Zanesville, Ohio, recently contracted for three more Harrop car tunnel kilns. This makes five tunnel kilns for which the company has contracted during the past year.

* * *

KNOWLES POTTERY OPENS

Homer Knowles, president of the Knowles Pottery Co., Santa Clara, Cal., announces that following the reorganization of management and the election of directors for the new year the company has reopened its factory, and in some departments pottery and dishes are already being manufactured. In a few weeks at the outside all departments of the factory will be in full operation.

* * *

DISPLAYING ASSOCIATION'S TILES

Robert Howden & Sons, of 1115 Webster Street, Oakland, are making a fine display in the Oakland Building Exchange of the product of the Associated Tile Manufacturers of Beaver Falls, Pennsylvania.

* * *

INSTALLS NEW SAGGER MACHINE

Since the business of the Illinois China Co., at Lincoln, Ill., was reorganized, a decided increase in production has been noted. Production in this plant is under the direction of James R. Shaw, who is well known in the hotel china business, both in the Trenton, N. J., and East Liverpool districts.

The company has started the marketing of decorated hotel china, this department being an addition to the shop, which was recently rebuilt following partial destruction by fire. Production will be on a basis of probably ten kilns per month.

An improved sagger machine has been installed, and this is now being operated. The firm is also erecting a new office building. Recently the entire sales force of a Peoria, Ill., jobbing interest inspected this plant, the visit being for the purpose of educating salesmen as to how hotel china is produced.

* * *

B. T. SWEELY MOVES TO BALTIMORE

B. T. Sweely, who is known among Iowa manufacturers and who recently entered the enamel industry, lately moved to Baltimore, where he is connected with the Baltimore Enamel & Novelty Co., manufacturers of all kinds of signs and flatware.

* * *

C. E. MACRUM DIRECTOR AT KNOWLES

Charles E. Macrum, former United States Consul to Pretoria, South Africa, during the Boer war, but now engaged in the real estate and insurance business in Los Altos, Cal., has been named a member of the board of directors of the Homer Knowles Pottery Co., of Santa Clara, Cal. It is the purpose of this company, as its business develops, to increase the capacity of the shop to nine kilns. There are only two generalware potteries on the Pacific Coast, that of the Empire China Co., at Burbank, a suburb of Los Angeles, and the

Knowles pottery at Santa Clara. The possible consumption of dinnerware and hotelware on the Pacific Coast and tributary states is far more than these two plants could supply, even tho they operate steadily thruout the year.

* * *

WILSON WANTS POTTERY IN WASHINGTON

Hewitt Wilson, head of the ceramic department of the University of Washington, Seattle, declared recently that he will never rest content until he has witnessed the establishment in that state of a generalware pottery and also a flint glass factory. He pointed out that within the bounds of the state of Washington are to be found clays for practically every purpose, and an abundance of sand for the manufacture of glass. He also commented upon the vast consuming territory served by Washington, and that a generalware pottery and flint glass plant would no doubt prove to be paying propositions from the very start.

* * *

M. H. DONALDSON LEAVES HOMER LAUGHLIN

Announcement has been made of the resignation of M. H. Donaldson, for the last 17 years with the sales department of the Homer Laughlin China Co., of East Liverpool, Ohio, and Newell, W. Va. It is the purpose of Mr. Donaldson, who has been traveling the middle west territory for this firm, to enter the manufacturers' agency business in the Central West, but he has not made a decision as to just where he will open his offices. Mr. Donaldson will very likely continue to represent a dinnerware line as well as affiliated commodities.

* * *

MADDOCK CELEBRATES 75TH BIRTHDAY

John Maddock, president and treasurer of Thos. Maddock Sons Co., Trenton, N. J., manufacturers of Sanitary ware, celebrated the seventy-fifth anniversary of his birth, February 5. Mr. Maddock continues in active charge of the business and spends a good portion of every working day at the plant.

* * *

FORM FIRE BRICK COMPANY FOR \$100,000

P. A. Marvel Co., Wilmington, Mass., manufacturer of fire brick, has incorporated with a capital stock of \$100,000, it is reported. The incorporators are Richard H. Catlin, M. M. Toner, Wilmington; R. P. Valentine, Philadelphia, and S. D. Townsend, Jr., Wilmington.

* * *

POTTERS TO MEET IN NEW YORK

The annual meeting of the United States Potters' Association, which it was proposed to hold in Washington, D. C., April 10, 11 and 12 next, has been transferred to the Hotel Astor, New York City, where the association convened in 1921. The annual meeting of the association is always held in December, but because of the strike in the pottery trade, which was just being brought to a close December 5 last, it was deemed best, so that no misunderstandings would result, to postpone the meeting indefinitely.

President Frank P. Judge, who is secretary of the National China Co., Salineville, O., is now working on a program, which will include several speakers of national import. These will address the meeting on commercial subjects solely.

It is very likely that Mr. Judge will be reelected for the second term, likewise other officers. Among important committee reports will be that of the Research Committee, of which A. V. Bleininger, of the Homer Laughlin China Co., is chairman.

UNIVERSITY OF ILLINOIS

Management and Superintendence

A COMBINATION FUEL OIL AND GAS BURNING SYSTEM

Editor's Note—This data was gathered by L. S. Kelso, Engineer, Tate-Jones & Co., Inc., Pittsburgh, Pa., with the assistance of the Wheeling (W. Va.) Tile Co., and of C. E. Jackson, president of the Warwick China Co., of Wheeling, W. Va.

Altho this article describes a system of burning in use in a pottery plant, the system itself is just as applicable to a heavy clay products plant.

In the past the main fuels used by the pottery manufacturers have been coal and natural gas for their glost kilns, but in the last few years great progress has been made in burning fuel oil in kilns instead of coal or natural gas where the supply is limited.

It has been found from actual experience that oil can be used in china kilns and there are quite a number of advantages in burning fuel oil, especially where coal has been used.

When considering the installation of such a system various points must be considered as follows:

1. Cost of installation in comparison with other fuels.
2. Advantages of this system over other systems.
3. Cost of fuel.
4. Results obtained, (a) kind of ware; (b) action on saggars; (c) action on kiln.

1. Cost of Installation in Comparison With Other Fuels

When considering the cost of the installation, we must take into account the number of kilns that are to be equipped, the number of kilns running at one time, the facilities available for supplying oil to the plant and the general arrangement of the kilns in the plant. Some companies need a large

storage capacity due to the fact that fuel cannot be obtained easily or at short notice and in this case the storage tanks run up the cost of the installation per kiln. In nearly every case the proposition must be worked out and the conditions analyzed before a definite figure can be reached.

2. Advantages of this System Over Other Systems

Where gas has been used to a great extent and where the gas supply is limited, a combination oil and gas burner can be installed, thus giving the company an opportunity to use gas when it is available and oil when the gas supply is short, as it is in most all of the natural fields in the winter months.

When considering a change of fuel in a plant, the first thing most companies consider is the ease of operation of the various fuels in comparison with coal and natural gas.

It has been found from actual experience that fuel oil is the next best fuel to natural gas in the way of ease of operation and for this reason a number of companies have installed, and others are considering the installation of fuel oil in combination with natural gas or in place of coal.

System Described Is Different

The design of combination oil and natural gas burners shown in Figure 1 is different from other systems. This system is used where natural gas is burned without any blower air used. This is an advantage over other systems that use blower air due to the fact that power and the wear and tear on the blower are saved. The system has proved its efficiency and economy when burning natural gas separately or in combination with oil and is very well liked by the users for its operation and saving effected.

Figure 2 is a view of the same plant with the blower for supplying the air to all of the oil burners. The blower is only used when burning oil and very little air is used then, due to this high atomizing efficiency of the oil burners. The air piping shown was originally put in for another make of burner. The piping could be more conveniently arranged

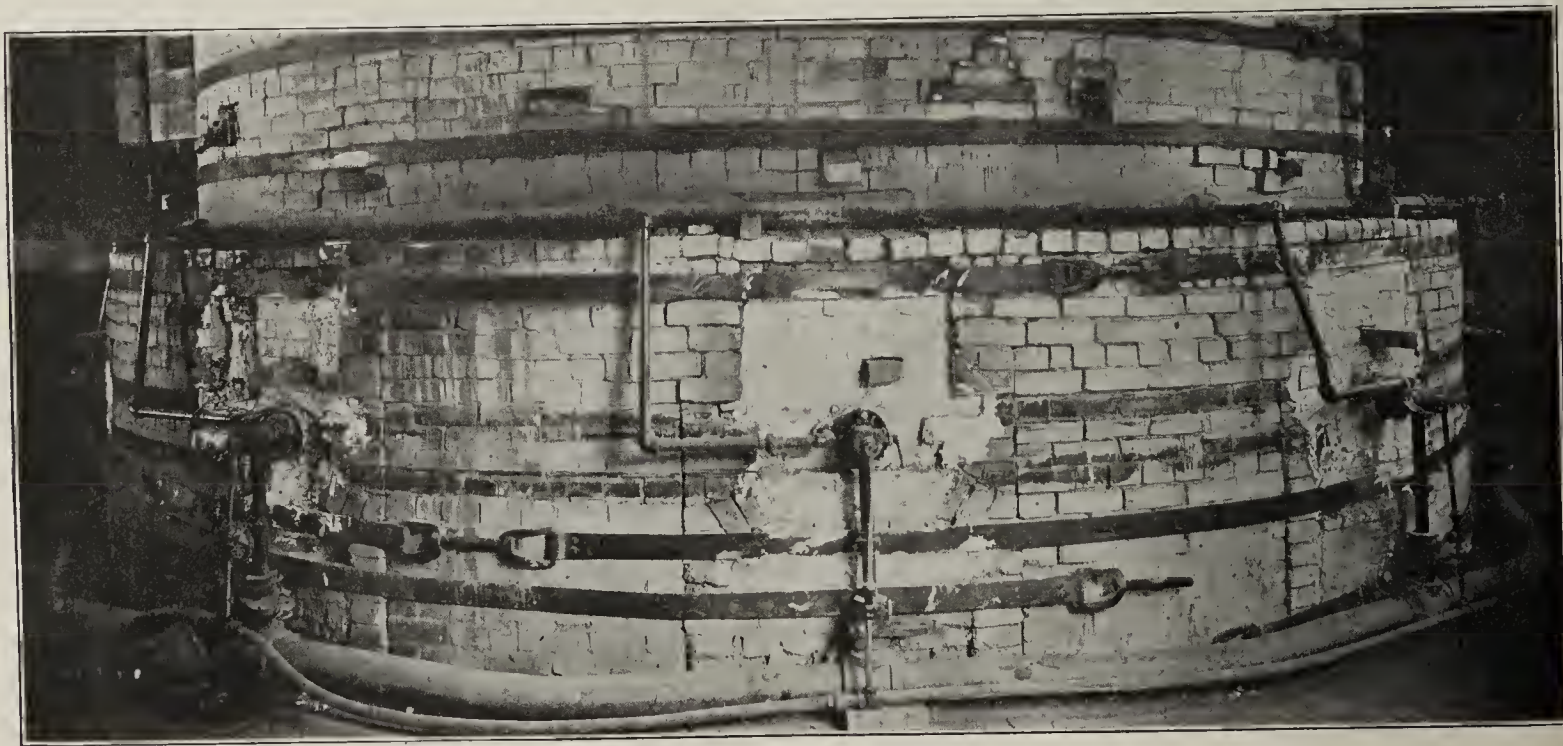


Figure 1. A Combined Oil and Natural Gas Burner Operated Without the Use of Any Blower.

at a lower cost by having it overhead and made of galvanized sheet steel.

Advantages of Fuel Oil Over Coal

Smoke—Owing to the fact that the kiln can be started with much less smoke there is practically no danger of soot-ing the kiln.

Air—With fuel oil no doors have to be opened as in firing coal, and the inlet of cold air is much more closely regulated. Less heat value is required to raise the kiln to the proper temperatures. This means a saving of fuel.



Figure 2. The Same Type of Burner as That Shown in Figure 1 with the Attachment of a Blower for Air Supply.

Sulphur—The sulphur in oil usually used in potteries averages $\frac{1}{2}$ of one per cent. of its bulk. This can easily be obtained. In coal, sulphur runs from $1\frac{1}{2}$ to 4 per cent. of the bulk, and as coal is twice the bulk or volume of oil for the same number of heat units, coal with $2\frac{1}{2}$ per cent. sulphur really contains five times as much sulphur as oil. Sulphur not only discolors the ware but also destroys the fire brick in the kiln.

Labor—There is no more labor required to burn a kiln with oil than with natural gas but with coal there is much labor involved.

1. Storing the coal.
2. Hauling coal to kiln.
3. Cleaning the fires.
4. Handling the ashes.

This is all done away with when fuel oil is used. The oil is unloaded by gravity into the storage tank which is usually underground, thus saving space as the ground above the tank can be used for other purposes.

The loss of oil by evaporation is practically nothing, whereas coal loses about 1 per cent. by oxidation.

3. Cost of Fuel

The comparison in the cost of fuel depends largely upon the district in which the plant is located. In the natural gas district, gas costs about 45 to 50 cents per thousand cubic feet, and the equivalent cost of oil is about $6\frac{1}{2}$ cents per gallon.

4. Results Obtained

(a) Kind of ware.

It has been found from actual figures that approximately 10 to 20 per cent better ware can be obtained from the kiln when oil is used than when coal is used. Approximately the

same amount of good ware can also be obtained from an oil fired kiln as from a gas fired kiln.

(b) Action on saggars.

The loss of saggars is no greater when burning oil than when burning gas. In burning coal, however, there is a greater loss due to the fact that you have expansions and contractions in the kiln every time you add more coal to the fire, thus shortening the life of the sagger.

If a plant is not in the natural gas field and wants to change from coal to oil, it would undoubtedly double the life of the saggars by this change.

(c) Action on kilns.

The burning of oil in a kiln, if applied properly, should have no more effect on the kiln than when burning natural gas or coal.

Oil Consumption Is Low

It has been found from actual experience that a bisque kiln can be burned using approximately 2,700 to 2,800 gallons of oil, which is a very conservative figure.

Natural gas would require from 386,000 cu. ft. to 400,000 cu. ft. and an equivalent of bituminous coal would be 27 to 29 tons. In the pottery from which this data was gathered, coal can be had at \$3.50 per ton delivered, but due to the higher value of the kiln production it is cheaper to use oil and gas. The same is true with glost and decorating kilns.

In firing a bisque kiln, the burners must be throttled down very low for the first 24 hours and this can be done very successfully by the equipment illustrated. It is also necessary to fire the kiln very hard after the zero point has been reached and this can also be done.

It has been found from actual experience that a kiln of glost ware can be burned using approximately 1,700 gallons of oil or 240,000 cu. ft. of natural gas, or an equivalent of 16 tons of coal.

Oil or natural gas on decorating kilns has the advantage of giving a uniform control of the temperature and saving labor as well.

INSURING AGAINST SHORTAGE OF REPAIRS

A system of keeping a record of repair parts in stock, as followed at one clay products plant, can be followed with advantage by others. Many of this company's repair parts are made of cast steel and manganese steel, and generally several months intervene between the date of the order and the day of delivery. A shortage of repairs when needed would, therefore, be very expensive and troublesome and lead to all kinds of stoppage and curtailment in production.

It has been determined, thru years of records and experience, how long a certain part should wear, and how long it takes to obtain a new part. On this basis they have adopted a certain amount as a standing stock for each part. In general this standing stock is large enough to insure complete repairs for four months' operation or longer.

On the first of every month an inventory of the repairs is taken and added to any orders outstanding. This total is checked against the standing stock, and, if there is any shortage an order is placed immediately.

By this system, also, delay in the delivery of orders can be checked up and tracers sent out if there is danger of a shortage of repair parts.

BRICK BATS MAKE MONEY FOR HIM

Harvey Garber, proprietor of the Garber Brick Works of Olive (Cal.) reports great activity at the new plant since its establishment. They have had the orders for the new County Hall of Records at Santa Ana and for the California Cordage factory at Orange. One feature has been the large demand for crushed brick for roofing which has kept busy the newly installed crushing plant.

MAKING SURVEY OF FARM OPERATIONS

A nation-wide survey, to discover the dollars and cents result of farm operations for the country as a whole in 1922, is now being made by the Department of Agriculture.

The survey, giving the facts of receipts and expenses, is the first of its kind ever attempted and is part of a permanent project to determine the trend of incomes from farming, currently from 1922 forward, and backward, so far as available data will permit. The survey will show acreage, farm value, method of operation, production, receipts and expenses on individual farms. Compilations will be made by sections of the country and also by commodities.

* * *

GENERAL BUSINESS CONDITIONS

Underlying conditions have not changed during the last 30 days. The volume of advance orders indicates increasing confidence in the continuance of good business for some time. Most manufacturing industries are operating at close to capacity, wholesale trade is good, and retail trade in dry goods and related lines has shown much less than the normal

seasonal dullness. Building and construction are at record levels for the season. Increased activity in the manufacture of agricultural implements and in other industries, the product of which must be sold to farmers, is based on the improvement in the agricultural situation which has taken place in recent months.

While there is as yet little evidence of overordering or duplication of orders in the expectation that they will be scaled the excellent outlook presents a temptation in this direction. Such practices produce an appearance of false activity and lead to speculative price advances. No factor contributed more than this to the severity of the depression of 1920-21.—Bulletin National Bank of Commerce, New York.

* * *

BAD ORDER CARS DECREASING

Freight cars in need of repair on February 1 last totalled 209,471, or 9.2 per cent. of the cars on line, according to reports just filed by the carriers with the Car Service Division of the American Railway Association.

This was a decrease of 7,729 compared with the total of January 15, at which time there were 217,200 cars, or 9.6%.

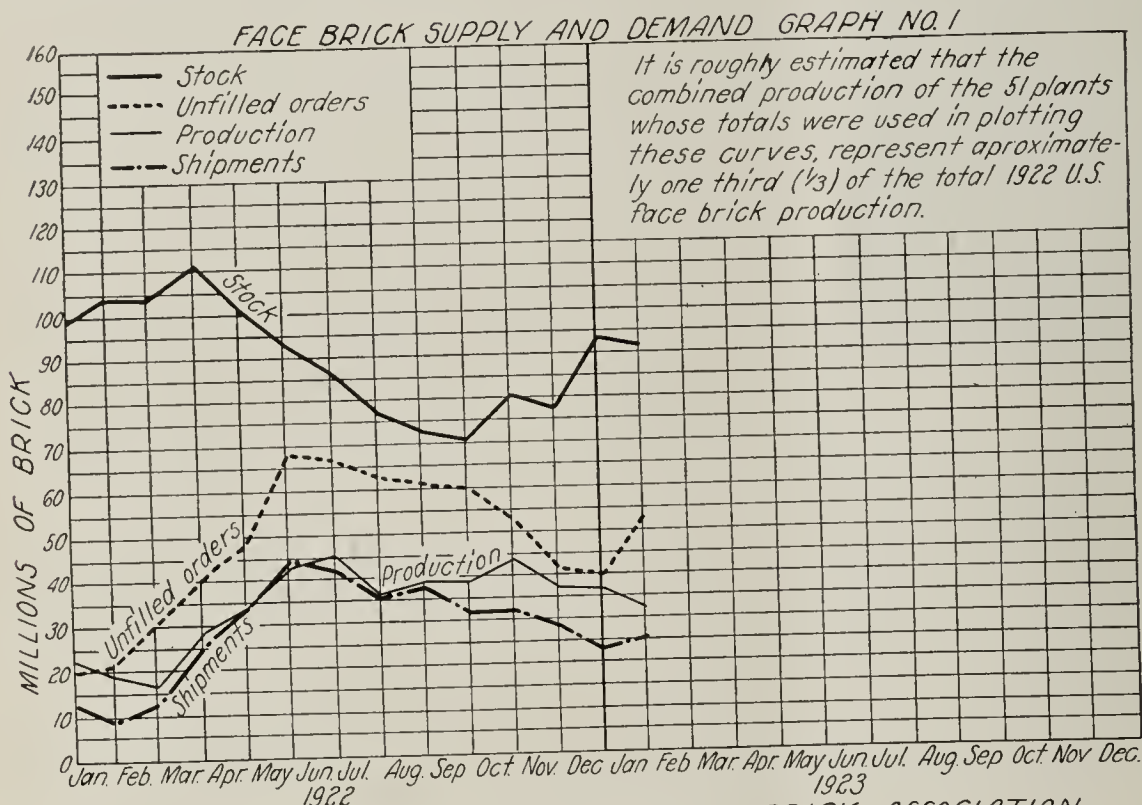
The number of cars in need of repair on February 1 was the smallest number since January 15, 1921. It also was a decrease of 121,579, compared with February 1, 1922.

Freight cars in need of light repair on February 1 last numbered 51,613, which was 2,755 less than on January 15. Cars in need of heavy repair totaled 157,585, or a decrease of 4,974 within the same period.

The number of cars in need of repair, and the percentage of such cars to the total on line are as follows:

	Bad Order Cars	P.C.
July 1.....	324,583	14.3
August 1.....	345,013	15.3
September 1..	321,674	14.1
October 1....	291,654	12.8
November 1..	249,960	11.0
December 1..	226,288	9.9
January 1....	216,011	9.5
February	209,471	9.2

—Railroad Data, Feb. 23.



Production, Shipments, Unfilled Orders and Stocks of Face Brick as Reported by 51 Plants. These Figures Are Representative of the Industry Because the Reports from the Same 51 Plants Were Used Thruout the Year.

HIGH GRADE
CLAYS
OF EVERY KIND—FOR EVERY PURPOSE
UNITED CLAY MINES CORPORATION, **TRENTON, N. J.**

Drawn from the Kilns

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clay Manufacturing

C. E. BALES HONORED BY CHAIRMANSHIP

C. E. Bales, chemist of the Louisville (Ky.) Fire Brick Works, was recently elected president of the Louisville section of the American Chemical Society.

DEATH TAKES LAWRENCE POELS

Lawrence Poels, proprietor of the Duck Creek Brick Co., Green Bay, Wis., died February 9. The business will be carried on by the estate.

PAYNE IS ADVERTISING CHAIRMAN AGAIN

At the convention of the Hollow Building Tile Association in January, J. H. Payne, of the Fraser Brick Co., Dallas, Tex., was again made chairman of the Advertising Committee. Mr. Payne has served on this committee for a number of years, and this is his second year as chairman. His reappointment to this important post this year is a distinct tribute to the excellent work which he has done for the association.

JOHN BROTHERLIN DIES OF PNEUMONIA

John Brotherlin, superintendent of Hiram Swank's Sons fire brick operations in Clearfield County, Pa., died in Altoona, Pa., recently. Pneumonia was the cause of his death. Mr. Brotherlin was a graduate of the Mercersburg academy, later entering the Boston School of Technology, where he studied chemistry.

H. S. McLEOD PASSES AWAY

Harvey Smith McLeod, fire brick manufacturer, died February 16 at his home in Troy, N. Y. Born in 1843, Mr. McLeod served in the Civil war and was promoted to the rank of lieutenant. In speaking of his death the Iron Trade says:

"He was well known as a philanthropist and famous as the originator of the Smith system of proportionate giving. His systematic beneficence, thru which he gave away one-tenth of his income to benevolences and the needy and his book on 'How Can I Make the Most of Myself?' gained him renown. Mr. McLeod took particular interest in the youth of his city, sent several young men thru college, became vice-president of the Hudson River Humane Society and was president of the trustees of Troy Central Y. M. C. A. and trustee of Emma Willard School."

C. L. GARD GOES TO MALVERN, ARK.

C. L. Gard has resigned his position with the Harrisonville (Mo.) Brick & Tile Co., where he was superintendent and accepted a similar position with the Arkansas Brick & Tile Co. at Malvern, Ark. Mr. Gard took up his new duties at Malvern, on March 1.

WHY PROF. COX MISSED A. C. S. MEETING

No doubt many of his friends have wondered why they did not see Professor Paul E. Cox at the American Ceramic Society convention at Pittsburgh, recently. His absence was occasioned thru no fault of his own but to an accident which he sustained the day before he was to leave for Pittsburgh. Prof. Cox already had his railroad ticket in his pocket when a tiny frozen puddle caused him to slip and break both bones in his leg just above the ankle. Altho his

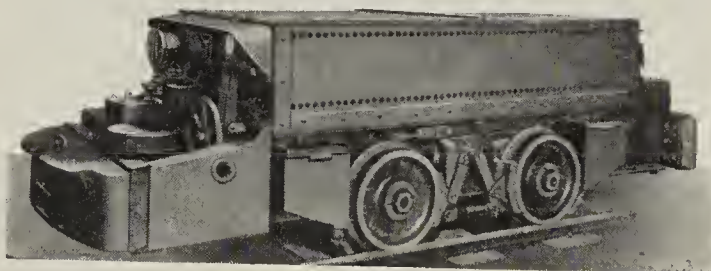
THE IRONTON STORAGE BATTERY LOCOMOTIVE

Take Indiana, for instance. Since July, 1918, 81% of all storage battery locomotives purchased in that state were Irontons. This must indicate superiority in quality and service. Ask our Engineering Department about Ironton Storage Battery Locomotives for your hauling.

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61 Marion Street, Seattle, Wash.



Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO
Sales Offices in Principal Cities

TORONTO PANS



244-245

are used to-day in the most successful plants in the country. They solve grinding troubles, save labor, require less maintenance, and upkeep, and improve quality of product.

Write for particulars.

THE TORONTO FOUNDRY & MACHINE CO.
TORONTO, OHIO



10 FOOT
TORONTO
DRY PAN

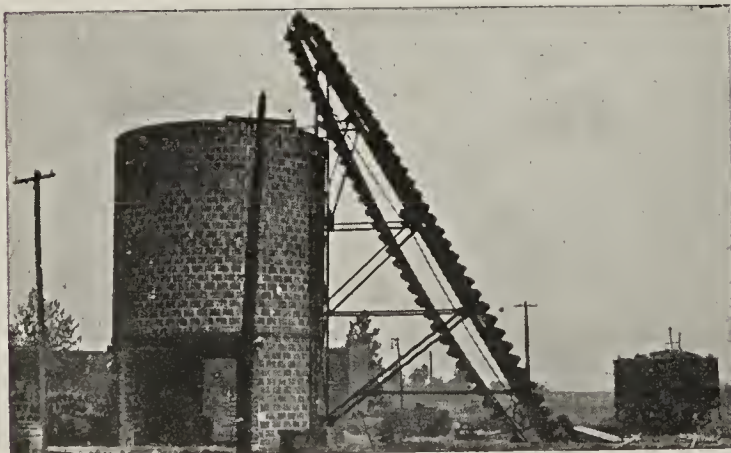
SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



leg is now in a plaster cast he expects to be teaching classes again in a short time. Prof. Cox is head of the Department of Ceramic Engineering at Iowa State College, Ames.

MAPEL AND PERSONS LEAVE DENISON

T. G. Mapel, general superintendent, and V. J. Persons, secretary-treasurer of Cannon & Co., manufacturers of Denison Interlocking Tile, face brick and a general line of clay products, Sacramento, Cal., have tendered their resignations to the above firm in order to take up new duties assigned them thru a syndicate of investors in a large clay products manufactory. The principle place of business of the new concern will be at Sacramento, Cal., while the territory to be served will be practically all of central and northern California. The qualifications of both men are well known. Mr. Mapel has been connected with several large clay plants in California in both executive and plant capacities. Mr. Persons' many years of close contact with this industry, afford him an enviable position as an executive and director. Complete announcements relative to the above will be made at an early date.

EXPECT GOOD THINGS OF 1923

The Birmingham (Ala.) Clay Products Co. is manufacturing on an average of ten million fire brick and face brick annually. These brick are going all over the South, while a number of large export orders are being shipped thru Gulf ports.

Officers of this company predict that the present year will be a most prosperous one, owing to the general building activities all over the South.

ALABAMA COMPANY TO IMPROVE PLANT

Extensive improvements entailing an investment of several thousand dollars is planned by the Andalusia Brick Co., of River Falls, Ala., to increase the size and capacity of the plant. O. L. Benson, of Andalusia, recently purchased the interest in the business formerly owned by Edward Wright, and is now associated with Hal Stanley, of River Falls, in the operation of the business.

MAY BUILD PLANT IN OROVILLE, CAL.

It is probable that Oroville, Cal., will add to its industries a new brick plant. G. E. Washburn was interviewed by J. C. Nisbet, secretary of the Oroville Chamber of Commerce regarding prospective sites for such a plant, it is reported.

U. S. REFRACTORIES BUILDS FIRST UNIT

The United States Refractories Co. of San Luis Obispo, Cal., has elected the following officers: For board of directors, R. W. Hull, Sr., Dr. N. J. Shields, F. H. Throop, R. W. Hull, Jr., W. T. Reid, M. D. Baldwin, C. M. Carpenter and J. H. Hollister.

The officers chosen are R. W. Hull, Sr., president; Dr. N. J. Shields, vice-president; R. W. Hull, Jr., vice-president; F. H. Throop, treasurer; and M. D. Baldwin, secretary.

This company has built the first unit of a plant to manufacture insulating products, at a cost of \$60,000. A big four-mold press has been installed and gives the plant a capacity of 20,000 brick per eight hour day. There is now on the ground material for two new kilns of the most modern type, to burn the refractory products.

The company will specialize in insulating brick, made from diatomaceous earth, the brick carrying the trade name of Incello products. The company is splendidly situated for transportation by rail and water, and feels justified in expecting to build a very extensive market, as numerous inquiries are received.

"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of the Columbia Brick Works, Portland, Oregon, in regard to their

MARION "RUST SPECIAL" Feeder and Mixer

Read his letter:

"We have been using the Rust Feeder for some time. We find that it gives us a better mixture of clay and a more uniform feed into the crusher, and has proved entirely satisfactory for our requirements."

Write for catalog describing the full line of MARION Clay Plant Equipment. No obligation to buy, but money in your pocket if you do.

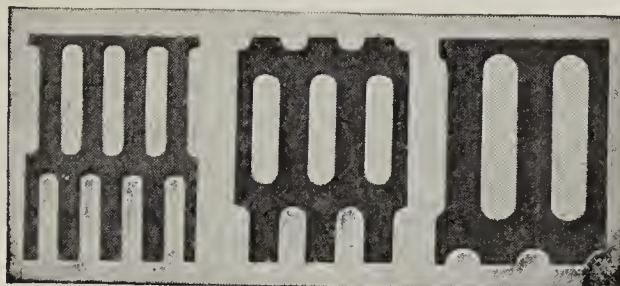
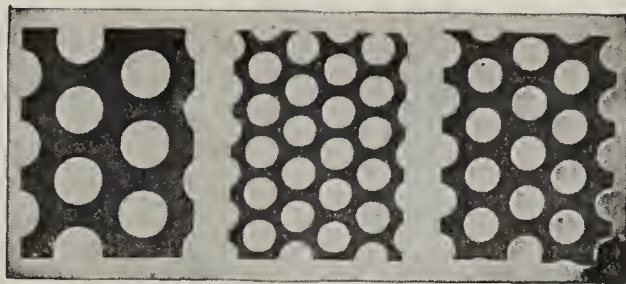
Marion Machine Foundry & Supply Co.

P. O. Box 395

MARION, INDIANA



Perforated Steel Screens



**For Screening Clay, Shale, Sand,
Gravel, Stone and Cement**

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

Would you like to improve the shade of your brick?

and thereby command a better price.

If you will write us the shades you are now getting, temperatures at which you are burning and the kind of kilns you have, we will be glad to furnish you with samples of our *Manganese* suitable for your particular clay or shale, with full information for testing. No obligation on your part.

*We have helped others—
Let us help you.*

Miners and Grinders

Hy-Grade Manganese Company, Inc.

WOODSTOCK, VIRGINIA

ESPECIALLY PREPARED FOR BRICK MAKING

CAUCASIAN OXIDE MANGANESE

Powdered—Granular
For Speckled Effects

PRECIPITATE CARBONATE BARIUM

For Prevention of Scum
Thereby Producing
Deeper and Richer
Color

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.**

New York

Chicago
Boston
Philadelphia

Trenton
New Orleans
Pittsburgh

Kansas City
Cleveland
San Francisco

Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

Bullitt Building Philadelphia, Pa.

Grinding Plant: Plymouth Meeting, Pa.



Dryer Cars
Rack Cars
Pallets
Transfers
Kiln Bands
Clay Cars
Steel Rails and Port-
able Track
Richardson Reprass
and Dies
Pittsburgh Hot Air
Dryer
Radiating Plate and
Dryer Castings
Waste Heat Dryer
Brick and Tile
Machinery
Elevators
Clay Feeders
Screens
Dry and Wet Pans
Rock and Shale
Crushers
Brick and Tile
Barrows
Ware Rope
General Supplies and
Repairs

PITTSBURGH HOT AIR DRYER

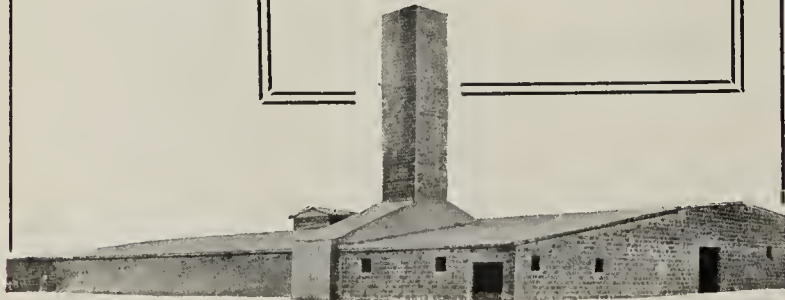
is designed to dry all clay
ware generally in "Nature's
Own Way."

It is extremely economical,
easily controlled, and cor-
rectly designed, embodying
control of temperature,
humidity, and circulation.

Ask for complete information
regarding the **PITTSBURGH**

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office, 918 Behan St., N. S. Pittsburgh, Pa.



DENVER COMPANY FORMED

The Morris Brick & Tile Co., of Denver, Colo., was recently incorporated with a capital stock of \$50,000, it is reported. The directors of the firm are L. D. Morris, A. L. White and M. P. White.

CONNECTICUT PLANTS SHORT OF CARS

Brick manufacturing plants at Berlin, Conn., are making ready for capacity production, and with a total of ten such yards in the city, it is estimated that over 150 cars of brick, on an average, will leave the plants each week for many months to come for distribution thruout the state, and other points in New England and in New York. At the present time there is a marked scarcity of railroad cars, and producers now operating are receiving far less than is desired. One plant requiring 25 cars a week, is being allotted ten cars.

MERRY BROTHERS BUILDING TILE PLANT

Merry Brothers, of Augusta, Ga., one of the better known and older established brick manufacturing plants in the state, have under construction an addition to the plant for the manufacture of hollow tile, that the company claims will be second to no plant of this kind in the southern territory. It will be finished and ready to operate some time the coming spring. A kiln 812 feet long is under construction that will supplement a kiln 612 feet long. The machinery to be used in the plant is interchangeable with brick so that, if necessary, the entire plant can be devoted to brick production. The plant originally was established in 1899 by A. H. and E. B. Merry, who still operate it.

WILL MAKE REFRACTORIES IN CHICAGO

A new plant is being planned by John J. Moroney & Co. of Chicago. It will be located at Cicero, Ill., and will consist of two kilns. The output will be restricted to hand made refractory shapes of fire clay and super-refractory quality. It is planned to produce about ten tons of ware per day.

TWO FACE BRICK DEALERS CONSOLIDATE

A very important change took place recently in the Chicago Face Brick Dealers' group. S. S. Kimbell Brick Co. took over the lines and organization of the Meacham & Wright Brick Co. R. B. Howard, sales manager and secretary of the Meacham & Wright Brick Co., has been appointed sales manager of the S. S. Kimbell Brick Co. Also John B. O'Connor and Clarence Schisler, of the Meacham & Wright Brick Co., joined the Kimbell selling organization. This consolidation gives the S. S. Kimbell Brick Co. one of the largest face brick selling organizations in the city of Chicago.

Officers of the S. S. Kimbell Brick Co. remain: President, L. D. Binyon; vice-president, H. L. Matz; secretary, Ray Mackinson; treasurer, H. O. Binyon.

This company is entirely rebuilding its display rooms, which, when completed, will give them one of the most attractive brick exhibits in this country.

CARTAGE COMPANY IMPROVES DEALERS' SERVICE

R. B. Howard, sales manager of the S. S. Kimbell Brick Co., is part owner of a company known as the Brick Cartage Co., which owns and operates a storage yard and fleet of trucks for the handling of face brick. Everyone knows that delivery is an all-important factor in the face brick business. The cartage company furnishes storage space for several companies specializing in face brick and assumes responsibility for all delivery in one section of the city. The fact that it serves several companies permits its equipment to be oper-

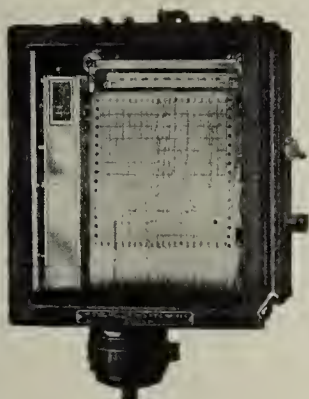
THIS WINTER

When winter sets in—and the thermometer begins to drop—when the snow falls and colder winds blow—how are you planning to hold even temperatures? Will they fluctuate with the weather, or will you have perfect control?

Bristol's Pyrometers afford a perfect control of all temperatures up to 3000° Fahrenheit. They accurately indicate and record, thus giving your burner immediate warning in case of sudden drop or rise in heat.

Ask for our latest catalog AE 1401—the most complete pyrometer catalog ever published

The Bristol Company
WATERBURY CONNECTICUT



The Connecting Link—

To greater efficiency in any sliphouse between blunger and filter press is the

MUELLER PUMP

Mechanically correct in construction, never-failing in operation, and daily performing in many potteries, both large and small throughout the country, this pump can help you increase Your production.

We will gladly tell you how. Write to-day

THE MUELLER MACHINE CO.

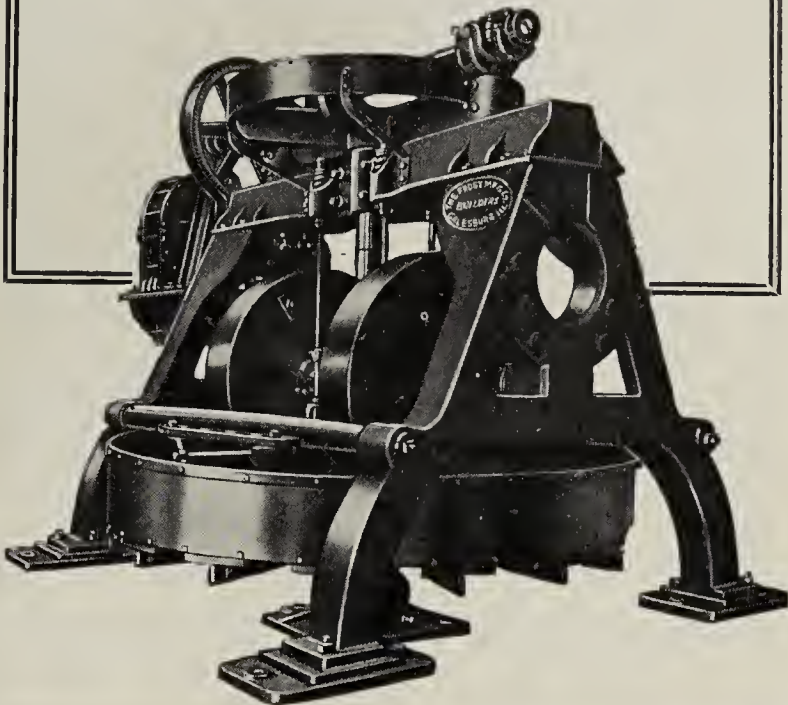
(Incorporated)

TRENTON 23 Ward Ave. NEW JERSEY

BETTER QUALITY WARE

That is the result when Frost Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

ATLANTA, GA

BALTIMORE, MD.

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DETROIT

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PHILADELPHIA

MONTREAL

MINNEAPOLIS

NEW YORK CITY



SAN FRANCISCO

ST LOUIS, MO

TORONTO

WINNIPEG, MAN

MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

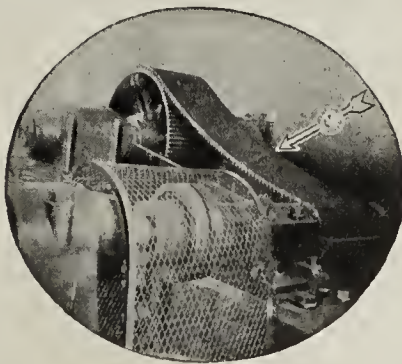
Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

ITHACA, NEW YORK



CHARLOTTE, N C. CHICAGO CLEVELAND KANSAS CITY, MO



TRADE MARK REGISTERED U.S. PAT. OFFICE
JUNE 21st, 1910

■ VEELOS ■ GENUINE BALATA BELTING

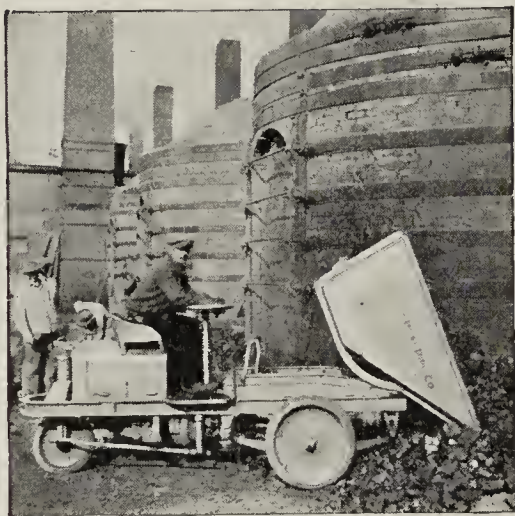
Specially designed and constructed for hard, rough, moist, wet or dry work, such as is encountered in stone quarries, sand and gravel pits, brick and clay plants, and copper, gold, zinc, and other mines. Ideal for all kinds of rough, gritty, dirty, hard work, whether under wet or dry conditions.

CONVEYOR—ELEVATOR TRANSMISSION

Write for Booklet and Samples

MANHEIM MFG. & BELTING CO.
MANHEIM, PA.

Here's a quick way to move your coal



Brick and clay plants find they can handle coal to their kilns quickly and cheaply with Clark Trucktractors.

CLARK TRUCKTRACTOR CO.

1124 Days Ave.

Buchanan, Mich.

ating at capacity and the cartage company and the brick companies as well are enabled to give maximum service at lowest cost.

DUNLAP MFG. CO. SENDS SOUVENIR

Brick and Clay Record's only Valentine on February 14 came from Dunlap Manufacturing Co., of Bloomington, Ill. This was a very attractive and useful souvenir, the nature of which we have been asked not to disclose. This company does a clever bit of advertising in the following way: At the common brick convention at Cleveland recently, a number of manufacturers signed cards and sent them to the Dunlap Manufacturing Co. To these men a very fine souvenir was sent.

ADVERTISING THRU A BASKET BALL TEAM

John Andres of the Standard Brick Manufacturing Co., Evansville, Ind., has written Brick and Clay Record of an extremely interesting idea to gain valuable publicity and to promote a better feeling among the employees of his plant. The idea is certainly worthy of mention. Mr. Andres says:

"During the past season we have sponsored a basket ball team which adopted the name 'Rugby,' the trade name for our rough texture face brick.

"We furnished the boys with some nice suits with our company's name embroidered on their sweaters and the name 'Rugby' on their shirts.

"They played as an independent club and accepted games from any and all other clubs in Evansville and surrounding territory. We were fortunate to have some of the best players in the city and they lost only two games during the entire season, both teams winning these games losing each two games later to the Rugbys.

"They have been presented with a nice silver cup awarded to them as champions of this district. They will leave for Indianapolis for a state tournament February 22, 23, and 24 where they will compete with other clubs for the state championship.

"We have received considerable publicity and we think valuable advertising thru constant press notices on the sporting page in all three of the daily papers."

RATE CHANGES IN IOWA

A case before the Interstate Commerce Commission involved the request that Hampton, Sheffield and Rockford, Ia., be grouped with Mason City for the purpose of freight rates in shipping their products. G. H. Galvin represents the plants at Rockford and F. F. Carhart for Sheffield. S. J. Galvin, manager of the Hampton Brick & Tile Co., attended the hearing and believes that the request will be granted.

ENCOURAGING TILE SILO CONSTRUCTION

In order to encourage the building of silos of brick in Montgomery County, the Independence (Kan.) Brick Co. has made a reduction in the price of those of its products which are to be used for this purpose, says Harry Jiencke, manager of the company.

BIG DEMAND FOR ROOFING TILE

The Mid-Continent Clay Co., of Peru, Kan., has experienced such tremendous demands for its roofing tile that the management of the company decided to discontinue manufacturing face brick. Its entire production facilities are now being devoted to the manufacture of roofing tile and tile slabs. The company manufactures all the standard patterns and colors possible with a red burning shale and on account of the high quality of the material has no difficulty in disposing of its product.

The Digger

for the average sized plants

The machine that digs, loads and mixes enough clay, for a capacity of 25,000 to 100,000 per day at an average cost of \$8.00 per 10 hours. An excellent machine for stripping. Saves enough over hand labor to more than pay for itself in a short time, besides improving your ware thru a better mix. Caterpillar or track mounting, gasoline or electric power.

In many instances it has displaced 12 men and is costing less for operation than the wages of three of them. The price with caterpillars is less than \$3,000

Even the very small plants can afford and ought to have the BAY CITY.

You will need a digger this year.



THE BAY CITY DREDGE WORKS
Bay City, Mich.



Interior Wall Finish

Should Have a Soft Pleasing Color. This Quality Is Assured in Your Face Brick or Tile by the Use of **National Manganese** The Standard for Twenty Years.

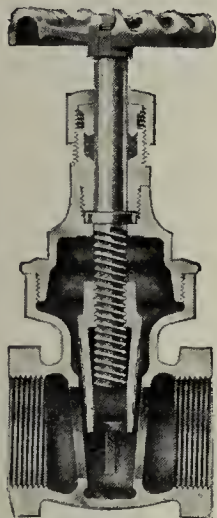
WRITE TODAY
FOR SAMPLES AND PRICES

National Paint & Manganese Co.
LYNCHBURG, VA.

Miners and Grinders for More Than a Quarter Century.



Note the thorough, even distribution of metal



There is no weakness at any point. Throughout a Jenkins Valve there is ample strength to meet any strain.

The Jenkins Standard Brass Gate Valve, shown here in sectional view, is made screwed or flanged, with a stationary spindle, inside screw; or outside screw and yoke, rising spindle.

Jenkins Valves are always marked with the "Diamond"—a symbol of dependability and service. Supply houses everywhere.

JENKINS BROS.

New York Boston Philadelphia
Chicago Montreal London

Factories:

Bridgeport, Conn., Elizabeth,
N. J., Montreal, Canada

Sectional View
Fig. 370 Jenkins
Standard Brass
Gate Valve

Jenkins Valves
SINCE 1864

IN EVERY
BRANCH
of
CLAY
PRODUCTS
MANUFACTURE
**STEVENSON'S
EQUIPMENT
CUTS THE
COSTS**

THE STEVENSON CO.
Wellsville, Ohio
Western Sales & Engr. Office
802 Monadnock Bldg. Chicago, Ill.

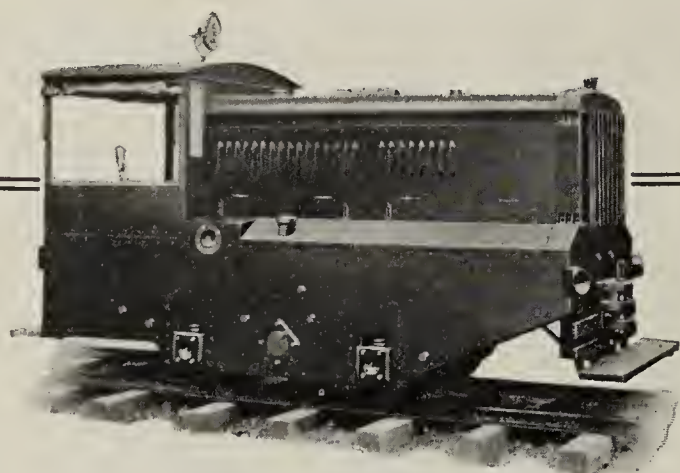
Dry Pans
Wet Pans
Roll Crushers
Sewer Pipe
Presses
Sewer Pipe
Turners
Tile Presses
Press Feeders
Crusher
Feeders
Pan Feeders
Bucket
Elevators
Gravity
Elevators
Brick Barrows
Tile Barrows
Sewer-Pipe
Barrows
Gigs,
Etc.

STEVENSON

PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details



MINSTER LOCOMOTIVES

are particularly adaptable to clay pit work. Not only does a Minster offer you cheaper haulage, but affects a big saving in time and labor.

*Ask about the Minster
2 to 8 ton capacities*

THE INDUSTRIAL EQUIPMENT CO.
510-510 OHIO STREET MINSTER, OHIO

Eastern and Export Department
The Herbert Crapster Co., Inc.
1 Madison Ave., New York City

LOUISVILLE CLUB ENTERTAINS INDIANANS

The Louisville (Ky.) Brick Club which was formed recently is meeting every Wednesday at the Watterson Hotel for lunch, and has perfected the organization. At the last meeting several visitors were present including Henry Kleymeyer, of the Standard Brick Co., Evansville, Ind.; Henry Kleymeyer, Jr., and Ralph Kleymeyer. The Kleymeyer interests are interested in the Southern Brick & Tile Co., at Louisville, another plant at West Point, Ky., and one at Henderson, Ky.

E. L. COOK MAY BURN WITH OIL

E. L. Cook Brick Co., North Middleboro, Mass., contemplates using oil instead of coal in burning its brick. Experiments are being made to prove the practicability of the oil burning equipment.

MAY INSTALL CRAWLER TRACTOR

The Superior Pressed Brick Co., St. Louis, Mo., manufacturer of face brick, is considering the installation of a crawler type tractor for plowing its clay. W. C. Mitchell is manager of the plant.

MISSOURI COMPANY INCREASES CAPITAL

The Missouri Fire Brick Co., St. Louis, has filed with the Recorder of Deeds an application for an increase of its capital stock from \$100,000 to \$462,000. Of the present authorized capital but \$63,000 has been issued, so that the increase is \$399,000. Assets were listed at \$463,258.62 with the only liabilities the outstanding stock. John Dell is president, M. W. Dell, vice-president, and Joseph F. Walsh, secretary.

WELLSVILLE PLANT ENLARGING

The Wellsville (Mo.) Fire Brick Co. is planning on some extensive improvements which will greatly enlarge the capacity of the plant, it is stated. Two new kilns are to be built and additional machinery is to be installed. In order to meet the needs of the company the management plans to employ a larger force within the next few months. The local plant is making an excellent brand of brick and the reputation of the product is becoming so widespread that the plant has scarcely been able to produce enough to meet the demand. Large shipments are being made from the factory daily.

ST. LOUIS PLANTS OPERATING STEADY

There is no shortage of brick at present in St. Louis, Mo., and none is anticipated, according to Walter Pocock, secretary of the Brick Manufacturers' Association. He said that there are plenty of brick in the market now and dealers expect to be able to handle the spring demand without difficulty.

The open winter in St. Louis has enabled local brick manufacturers to operate without the usual cold weather lay off and the shortage threatened during the coal and railroad strikes has not developed in this section.

During the past few weeks there has been a slight increase in brick prices, but manufacturers say there will be little variance in the prices with the opening of the market and the rising trend of building operations. Prices will be virtually the same as a year ago, varying from \$20 to \$29 for ordinary factory brick and about \$15 for secondary brick used in backing up. In St. Louis the average monthly brick consumption is about 10,000,000.

TESTING CLAY FOUND AT WYMORE, NEB.

If favorable results are obtained from samples of clay sent to St. Louis for inspection by a combined committee of the Rotary and Kiwanis clubs, a large brick and pottery works will be erected at Wymore, Neb., a report states.



SALEM

Elevator Buckets

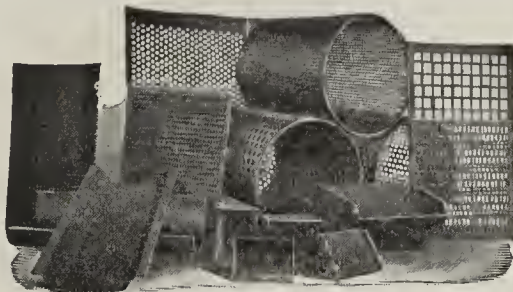
The original—Awarded First Premium in 1880—which has many imitations—further endorsed by the many imitations now on the market.

Standard for 40 Years
Made in all types and sizes for every requirement in Regular, Medium, or Extra Heavy Gauges—stock sizes, or Special Sizes made to order.

Send for catalog and price list, or submit specifications for price quotations.

Mullins Body Corp'n
Successors to W. J. Clark Co.
101 Mill St. Salem, Ohio

HENDRICK SCREENS FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

*Ask for your copy of the
Perforated Metal Handbook*

HENDRICK MFG. COMPANY
CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Arcade Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

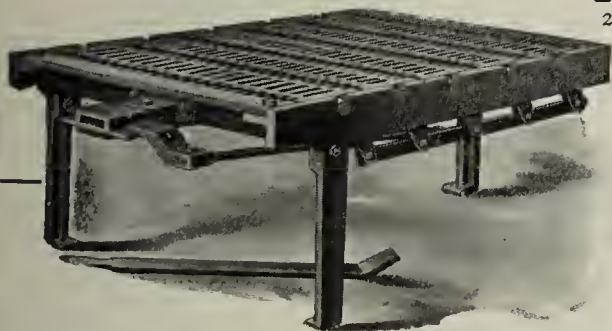
Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It wont cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



213



The Canton Grate Co.

1709 Dillon Place,

CANTON, O.

DIESEL ENGINES FOR CLAY PLANTS

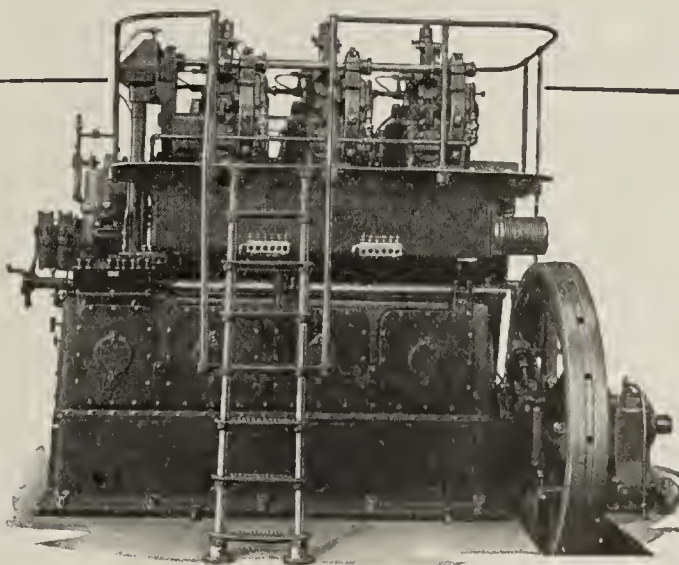
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

*Send for new catalog, either vertical
or horizontal types furnished.*

THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.



YOUR WARE CAN BE BURNED— CHEAPER and BETTER by the use of oil

Oil is the cheap and convenient fuel. Easy to obtain, easy to handle. It will not only give you quality burns, but will lower production costs. Burn with oil.

Let our Engineers give you some real helpful suggestions on oil burning. No obligation.

The Smokeless Oil Burner Co.

Bucyrus, Ohio



Tanks—Pumps—Meters
Strainers

In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

BURKE ELECTRIC CO.

MAIN OFFICE AND WORKS
ERIE PENNSYLVANIA

Service-Sales Offices

NEW YORK CLEVELAND PHILADELPHIA
PITTSBURGH DETROIT BUFFALO

Sales Agencies

CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

SELLS PROPERTY FOR \$17,000

For the sum of \$17,000 the Mohawk Clay Products Co. property at Perrysville, Ohio, was turned over to Wellington J. Griffith, of Tiffin, it is stated. It is believed that Mr. Griffith purchased this property for a syndicate of Wooster and Tiffin men.

GEM CLAY WORKS TO BUILD

Plans are in progress for the building of additions to the Gem Clay Works plant, Sebring, Ohio. One building will cover a space of ground 82x24 feet and another 30x24 feet, each two stories high. To meet the large demand for their products the company anticipates doubling the capacity and employing about 200 men.

HOCKING VALLEY MAKING REPAIRS

The Hocking Valley Products Co., of Columbus, Ohio, is making a number of minor repairs at its plant at Greendale, and getting ready for full production. H. F. White, manager of the brick department, reports a good demand with car shortage holding up shipments to a marked degree. Indications point to a good demand for all kinds of brick and hollow tile.

OHIO BRICK PRICES RISING SLIGHTLY

The tendency of prices on brick, especially face brick, is upward in Columbus and the Hocking Valley section. Some recent advances have been made but these are not numerous. On the whole prices announced several weeks ago still maintain, but there is no cutting to force trade. Face brick prices at the plants range from \$26 to \$38 depending on quality, texture and color. The price of common brick delivered on the job in Columbus ranges from \$15.50 to \$18.

COLUMBUS COMPANY ISSUES NEW STOCK

The newly elected board of directors of the Columbus (Ohio) Brick & Terra Cotta Co., which has a plant at Union Furnace, Ohio, met February 26 for the purpose of voting a stock increase preparatory for W. T. Matthews and his syndicate to take over the stock on an agreement entered into some time ago. The old issue of stock consisted of 30,000 preferred and \$125,000 common stock. Under the resolution which was adopted the new issues will be \$250,000 preferred and \$250,000 common. Mr. Matthews announces that he is making progress in disposing of the additional stock and will be ready to close the deal within a short time. The new board of directors elected February 5 consists of J. R. Kilbourne, H. A. Williams, T. P. Linn, Rutherford H. Platt, Felix A. Jacobs, Charles Wardlow and Herbert Brooks. Steps will be taken at once to put the plant in condition for making face brick and terra cotta.

THREE BIG PLANTS MERGED

A number of changes have been made by the R. L. Dollings Co., stock brokers who, it is said, have secured control of the Franklin Brick & Tile Co., of Columbus, Ohio, the Burton-Townsend Co., of Zanesville and Ash-tabula, and the Clay Products Co., of Brazil, Ind. Since the controlling interest in these concerns has been secured George M. Shoemaker of the Clay Products Co., has been made general manager with headquarters in Columbus. The Columbus office was also made the headquarters for the general sales offices of the three named concerns and W. P. West has been acting in that capacity. He has resigned, however, to become manager of the brick department of the Moores-Cooney Co., of Cincinnati and will take up his new duties about March 15. R. S. Dingleline, who



No. 300. \$7.80 per doz. \$90 per Gross Pair,

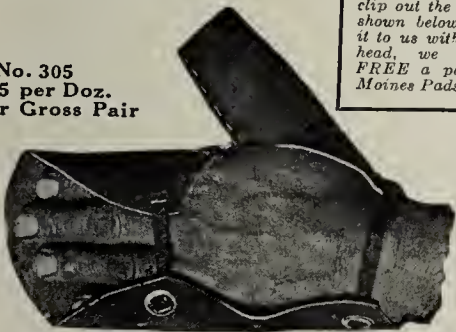
A Year of Labor Shortage

Hold on to your men. Jobs are going to be plentiful. Men like to work for concerns who look after their comfort, safety and welfare.

Give your men hand protection. Furnish them with Tuf-Tanned Kant-Rip Mittens or Hand Pads. Send for a trial dozen for either or both kinds. Try out a pair of each, if you are not satisfied return the remaining pairs to us without charge.

**DES MOINES GLOVE
& MANUFACTURING CO.**
DES MOINES, IOWA

No. 305
\$4.25 per Doz.
\$48 per Gross Pair



FREE

To any manufacturer whose men have not been using Des Moines Hand Pads who will clip out the Hand Pad shown below and mail it to us with his letter-head, we will send FREE a pair of Des Moines Pads.



OSGOOD-73 3 1/2 yd. in Sewer Tile Clay Pit.

OSGOOD STEAM SHOVELS

A size for every requirement. Railroad types from 1 1/2 to 6 cu. yd. for large production and 3/4 and 1 yd. Revolving shovels for small plants or where great mobility is desired.

Traction mountings furnished for railroad types when specified.

Descriptive Catalog and Bulletins upon request

THE OSGOOD COMPANY
MARION, OHIO, U. S. A.

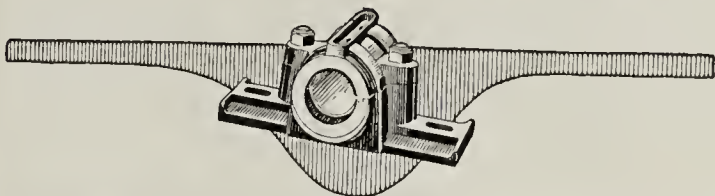
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SMOOTH running; correct in design, accurate and true to pitch, Caldwell gears are bound to please you. We make all types—machine-molded, cut tooth, mortise gears, worm gears, etc. Caldwell Promptness is Traditional. It is at your service. Our stocks assure prompt shipment.

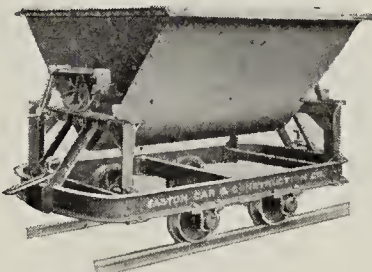
Let us figure with you next time you are in the market.

H. W. CALDWELL & SON CO. LINK-BELT COMPANY, OWNER
Dallas, Texas, 709 Main Street—Chicago, 17th Street and Western Ave.
New York, Woolworth Bldg.

CALDWELL



EASTON



Standard Rocker Dump Car

Sturdily built for long hard service. Dumps clean and clear of the wheels. Easily loaded by steam shovel or hand. Rolls lightly, and is carefully balanced. Quickly tripped and locked. Write for quotations on clay pit equipment.

Main Office and Works:

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EASTON CAR & CONST'N CO.



2189-E



Modernize Your Plant

— with a —

Russell ^{Continuous} _{Railroad} Tunnel Kiln

We are engineers of wide experience, capable of solving any burning problem. We design and build continuous Railroad Tunnel Kilns for every kind of clay ware.

Write for complete information.

Russell Engineering Company
Boston ST. LOUIS New York

Russell

TUNNEL KILNS

No. 4 Burner



FOERST Fuel Oil Burners Give —

Economy in Fuel—because they develop full efficiency of the oil.

Economy in Labor—because they eliminate back breaking and vitality—sapping work of firing and clinkering with coal.

Economy in Quality of Results—because color of ware is the same top and bottom. No sorting is necessary.

Write for catalog and information

JOHN FOERST & SONS, Bayonne, New Jersey

REPRESENTATIVES
Baumes-McDevitt Machinery Co., St. Louis, Mo. W. G. Edmonds, Clyde, N. Y.
Fuel Oil Engineering Co., Cincinnati, Ohio Elliott & Selby, Philadelphia, Pa.

FOERST

FUEL OIL BURNERS

has been secretary and treasurer of the Franklin Brick & Tile Co., has resigned and has entered the real estate business in Columbus. A still further reorganization is at hand but the complete plans have not yet been worked out.

NEW BRICK COMPANY IN PENNSYLVANIA

Charter was filed recently by the Ehr Gott Brick & Tile Co., Allentown, Pa., with a capital stock of \$40,000. Its incorporators are: George E. Ehr Gott, Paul R. Ehr Gott and Ario Wear.

WILL DOUBLE CAPACITY

The Monongahela (Pa.) Clay Mfg. Co. is planning to double its present capacity and is investigating several types of tunnel kilns. This company manufactures tile, face brick and other clay products.

WANTS CONVEYOR TO MOVE CLAY 300 FEET

Bessemer Brick Co., Monongahela, Penn., will purchase a power conveyor for transporting clay from pit to ears. The distance is about 300 feet and the load will be approximately 100 pounds to the cubic foot.

KITTANNING CHANGES NAMES

The Kittanning Gray Brick Co., New York, N. Y., has arranged for a change of name to the Willard Kittanning Brick Mfg. Co. The company operates properties in Pennsylvania.

DRILLING FOR NEW FIRE CLAY DEPOSITS

The Harbison-Walker Refractories Co. of Pennsylvania, manufacturer of fire brick, has a force of men at work making drill tests in the vicinity of Montgomery City, Mo. It is believed that large deposits of fire clay are to be found there since such clay is found at Fulton, Mexico and Wellsville, Mo.

TO INCREASE CAPITAL STOCK

The Harrisburg (Pa.) Shale Brick Co., with plant on North Cameron Street, has called a special meeting of stockholders on April 14, to provide for an increase in capital from \$60,000 to \$120,000, a portion of the proceeds to be used for general expansion. Jacob H. Foreman is secretary and treasurer.

STORMS SHUT DOWN PENNSYLVANIA PLANT

Heavy winter weather has affected brick plant operations in a number of the eastern districts, and temporary curtailment has been necessary owing to danger from severe storms. In Western Pennsylvania, at Hawstone, near Lewistown, the Haws Refractories Co., was partially closed down for a few days in February, owing to the unusually high winds and gales, making all outside work impossible.

DISCONTINUES MAKING PAVING BRICK

The Pennsylvania Clay Co. plant at Fallston, Pa., which has made paving brick for 35 years, has been changed over to a face brick plant and will have a production of 50,000 rough texture brick per day.

The plant at Conway, Pa., is down for minor repairs and will resume operations March 1. This plant will have a production of 60,000 paving brick per day. Geo. K. Robey, former general manager of the Johnetta Brick Co., will be in the sales end, of the Fallston plant.

INVENTS U-SHAPED BRICK

L. A. Ballonby, of Scarborough & Dotson, Roanoke, Va., is selling stock to Norton business and professional men with the expectation of organizing a stock company so that a new

Classified Ads

Continued from pages 464-465.

FOR SALE—Two Engelhard Stationary and one Brown Portable Pyrometers. None registered. New. Reasonable. Address: 3-NSK, care of "Brick and Clay Record." 3-1

FOR SALE—Very cheap. Thirty thousand lath pallets. C. L. Leonard, Delton, Mich. 3-1P

FOR SALE—1 four mould Ross Keller dry press. This machine has only been run a few months. Reason for selling, converting our plant to stiff mud. Here is a good press at a bargain. 1 slide valve steam engine, Gardner throttling governor with automatic stop, left hand, 14x20, solid bed, with 10-foot balance wheel—pulley 72x18. About 100 H. P. West Virginia Brick Co., Charleston, W. Va. 2-2-3

FOR SALE—Four mould Berg dry press. Hydraulic-Press Brick Company, 1337 South Kingshighway, St. Louis, Missouri. 2-2-3

FOR SALE—MACHINERY

One 65 H. P. Chandler Taylor Engine.
One 85 H. P. Mackelvain & Spiegel Horizontal tubular boiler.
One SSS Arnold-Creager brick machine.
Address: H. Suer & Sons, 2352 Harper Ave., Norwood, Ohio. 2-2-2

FOR SALE OR LEASE

Brick yard site on B. & O. Railroad between Dawson and Layton, Fayette County, Pa. Plastic Clay, Flint Clay, Silica Rock and Coal on the property. Suitable for fire, silica, paving or building brick. Address: George B. Freed, Agent, Connellsville, Pa. 8-2TF

FOR SALE—Two Bonnot represses, extra press boxes, extra parts. Priced right. Albion Brick Company, Albion, Illinois. 2-2-1P

FOR SALE—Fate Hummer Junior Machine complete with tile dies, 5 in. to 12 in. Located central Indiana. \$200.00 for quick sale. Address: 3-JM, care of "Brick and Clay Record." 3-2

We have received numerous responses from the classified ad run in your paper, and feel well assured that we can make satisfactory arrangements from this number, much less the applications we anticipate shortly. We are highly elated over the outcome of this ad. L. L. Stephenson, Lovick, Alabama.

FOR SALE—One complete Schofield-Burkett Excavator. This equipment is in very good condition and can be bought right. Address: 2-BXE, care of "Brick and Clay Record." 2-3

FOR SALE—Small brick and tile plant in a rich Iowa farming community. Lots of good clay. We manufacture brick, drain tile, building tile and glazed silo tile. Address: 2-Tile, care of "Brick and Clay Record." 2-2

FOR SALE—Second-hand Fernholtz four-mould dry press and pulverizer. Price reasonable. Address replies to Augusta Face Brick Co., Augusta, Ga. 2-2-2

FOR SALE—Steam Shovel Bargain. Thew revolving shovel, suitable for clay bank work. Low price—easy terms. Jas. S. Braden, 30 Church St., New York, N. Y. 1-2TF

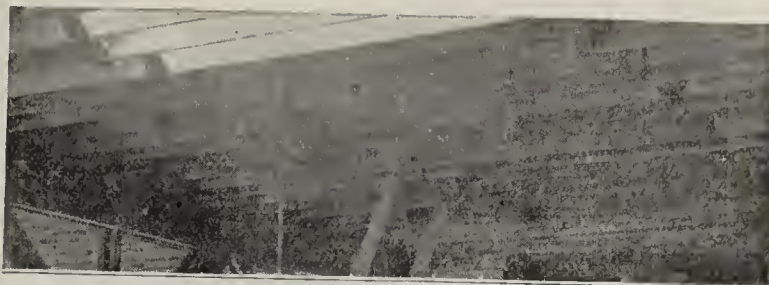
FOR SALE—Bensing Cutter No. IAT plain reel for cutting hollow tile. Good condition. Some extra repair parts. Address: 10-3Cutter, care of Brick and Clay Record. 10-3TF

FOR SALE—One new steel leg bucket elevator, 12 in. by 7 in. buckets, 32 ft. centers; one Freese C-20 cutter. Address: 12-ELV, care of "Brick and Clay Record." 12-TF

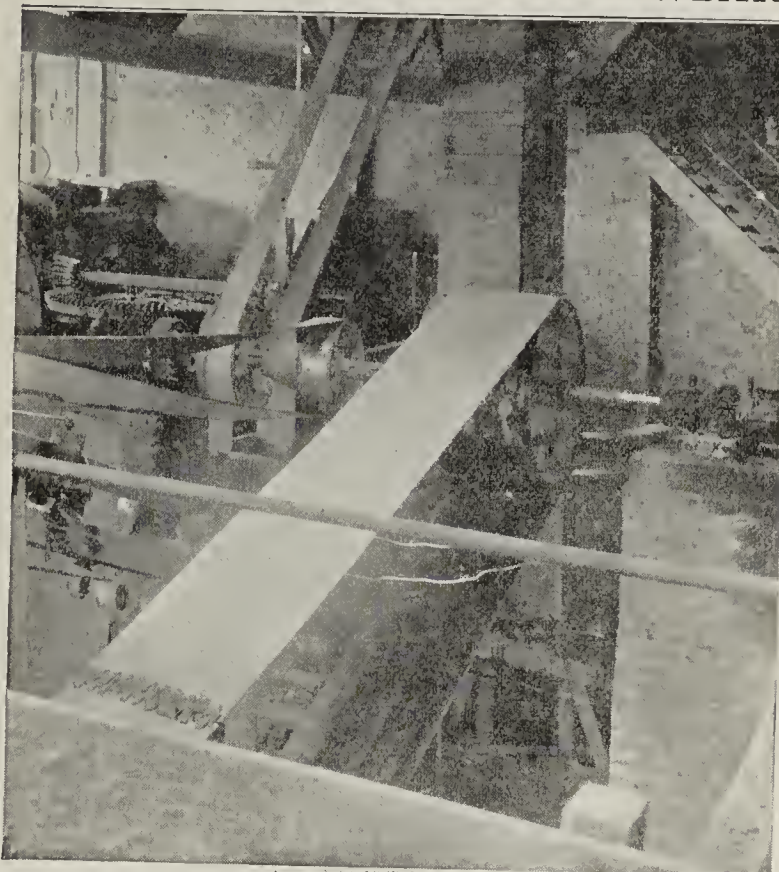
FOR SALE—Used Sewer Pipe Press. Condition good as new. Drain tile dies from 8 in. to 22 in. inclusive. Will sell at one-third price. Address: 2-CT, care of "Brick and Clay Record." 2-3

FOR SALE

One Chambers Brick Machine.
One New Steel Brick Machine.
One Thew Shovel.
One Oil Burning Equipment.
Lot 18-inch Chilled Car Wheels.
Address: 1-Equip, care of "Brick and Clay Record." 1-TF



GOODYEAR MEANS GOOD WEAR



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On all the hard drives for which the brick and clay industry is noted—the main drive, the crushers and grinding pans, pug mills and brick machines, represses and auxiliaries—and in all conveying and elevator duty, Goodyear Belts have an earned reputation for powerful, trouble-free service and long, economical life.

TRANSMISSION

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CONVEYOR

Goodyear, in distinctive types for specific services

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Air, Water, Steam, Fire and Mill

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Asbestos and Rubber Sheet

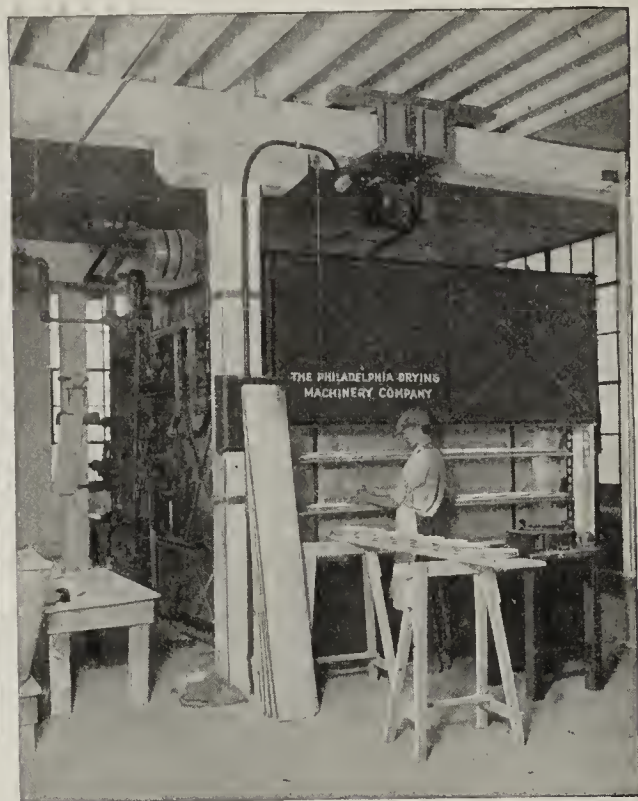
PUMP VALVES

Goodyear Belts and other mechanical goods for the brick and clay industry are scientifically specified to their work under your conditions of service by the G. T. M.—Goodyear Technical Man.

For performance records or any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

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Hurricane Dryers

Drying Dipped Dinner Ware at a reduced cost and without marking is a problem "Hurricane" Engineers have solved for many manufacturers.

"Hurricane" Dryers are constructed and equipped to reduce steam, labor, power consumption, and turn out the best finished ware.

Where our standard machines will not meet requirements, we are prepared to submit plans for especially designed apparatus.

Let us tell you how our equipment can be applied to your plant.



235

**The Philadelphia
Drying Machinery Company**
3351 Stokley St. Philadelphia, Pa.

Western Office: 1814 Continental Bank Building, Chicago

brick plant may be built that will manufacture a new kind of brick invented by Mr. Ballonby, who is an architect. This brick is produced in the shape of the letter "U," to be used in building hollow walls.

FIND GOOD CLAY AT WOODSTOCK, VA.

The Edinburg Paint Co., Woodstock, Va., has had tests made of its clay land in that city and the Hadfield-Penfield Steel Co., of Bucyrus, Ohio, who made the tests reports that the clay is of very high grade, capable of being made into brick of excellent quality. These brick can be made in three colors, ranging from white to a dark red. The erection of a large plant along the tracks of the Southern Railroad, between Woodstock and Edinburg, Va., will be begun as soon as the company hears from the firm testing the eight barrels of clay recently sent for further tests.

WASHINGTON PRODUCTS SUPPLANT FOREIGN

A thoro review of the ceramic resources of the Northwest was recently made by Ernest F. Goodner, ceramist of the Washington Brick, Lime & Sewer Pipe Co., Spokane, Wash., in a paper read before the Columbia Section of the American Institute of Mining & Metallurgical Engineering. Of commercial interest was the showing of the extent to which local production has practically excluded importations. The list includes in structural products, common brick, paving brick, face brick, terra cotta, sewer pipe, conduits, drain tile, hollow blocks, flue lining, and floor tile. In the list also are such household products as laundry tubs, earthenware, and pottery ornaments. And under accessories are mentioned fire brick, steamship hearths, locomotive slabs, blast furnace fittings, and acid-proof lining. Mr. Goodner also proposes a list of articles that might well be locally produced in addition to the above. These include wall tile, fireplace tile, roofing tile, chemical stone ware, kitchen ware and filters, hotel china, porcelains, and insulators. The author points out how breakage and heavy freight makes distant shipment of these articles undesirable, and that with growing population and abundant near-by deposits the local manufacturer will have an overwhelming advantage.

WHEELING COMPANY ADDS NEW MACHINERY

The Moundsville plant of the Suburban Brick Co., Wheeling, W. Va., has suspended operation for several weeks so that the necessary repairing can be made and new machinery installed. The erection of a new tile machine is contemplated.

INSTALLS NEW MACHINERY

Hocker Bros., of De Pere, Wis., are now installing a new brick machine at their West Side yard and have also placed an order for a small gasoline excavator for their West yard clay pit.

INSTALLING FORCED DRAFT SYSTEM

Marshfield (Wis.) Brick & Tile Co. is adding two new kilns equipped with a forced draft system and intends putting a forced draft system in the dryer. This company is also building a storage shed for clay with a belt conveyor.

TO BURN NATURAL GAS SOON

A first class brick and tile plant which manufactures brick and tile for the entire district is located south of Greybull, Wyo. As this location contains large quantities of shale, it is expected that many brick and tile plants will eventually be built and they will avail themselves in the next few years of the natural gas for fuel which is furnished by the city.

ATLAS

EXPLOSIVES

for quarrying



IN practically every kind of quarry blasting Atlas Ammite will do better work—and at less cost. Furthermore, as Ammite will not freeze and the usual powder headache is eliminated when handling, its use saves the time and labor lost through these objectionable features. Let the Atlas Service Man help you determine what grade of Ammite will save the most money for you.

AMMITE

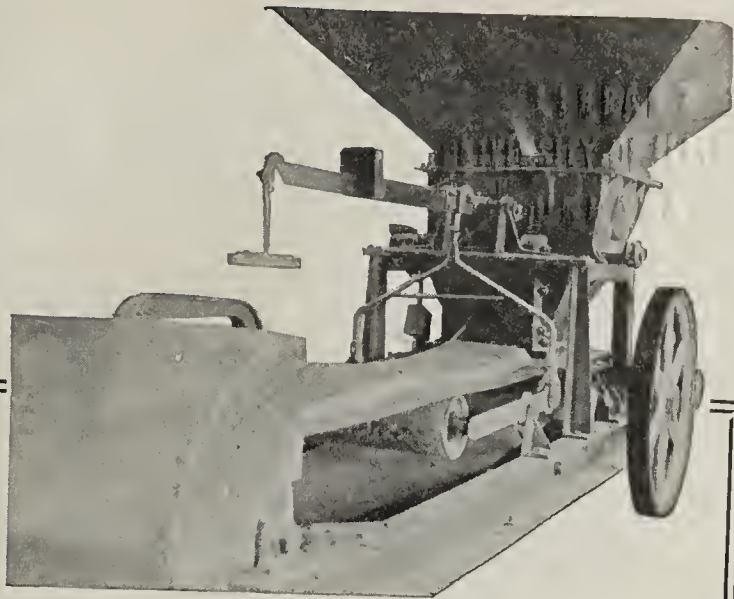
—cannot freeze—

ATLAS POWDER COMPANY
WILMINGTON, DELAWARE

Branch Offices:
Allentown, Pa.; Birmingham, Ala.; Boston, Mass.; Charleston, W. Va.; Chicago, Ill.; Des Moines, Iowa; Houghton, Mich.; Joplin, Mo.; Kansas City, Mo.; Knoxville, Tenn.;



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McAlester, Okla.; New Orleans, La.; New York City, N. Y.; Norristown, Pa.; Philadelphia, Pa.; Pittsburg, Kans.; Pittsburg, Pa.; Pottsville, Pa.; St. Louis, Mo.; Wilkes-Barre, Pa.



Temper Your Clay

With A

SCHAFER POIDOMETER

The tempering of clay is one of the most vital operations in the clay plant, and also one of the biggest items of cost.

The POIDOMETER will temper your clay with 99.75% ACCURACY, eliminating the pug mill man entirely. It will deliver the raw material at the rate of from 1½ to 21,000 pounds per minute.

Our Engineers can show you where the Poidometer will cut your costs. Write for details.

SCHAFER ENGINEERING AND EQUIPMENT COMPANY

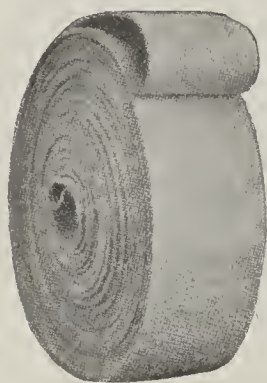
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PITTSBURGH

PA.



Meeting Every Conveyor Problem



It is nothing for a conveyor belt to do what other belts will do. The value of any particular make of belting lies in how much better it performs than the average.

There are lots of—

GREEN DUCK BELTS

everywhere in all industries. Not only are they doing the regular work exceptionally well, but in situations that are difficult—such as with gritty work in clay plants—you will find GREEN DUCK belts doing still better by comparison.

GREEN DUCK belts will solve your elevating, conveying, or transmission problems.

Put your problems up to our Engineering Department. Ask for sample.

The Allied Belting Co.
GREENVILLE, OHIO



W. A. HINDE BUILDING NEW PLANT
A new plant is being built for the Merriton Clay Products, Ltd., by W. A. Hinde, of Georgetown, Ontario. He expects to have it running in the spring.

OCCURRENCES AND PRODUCTION OF CLAY IN CANADIAN PROVINCES

By G. G. Ommanney, Development Engineer, Dept. of Colonization and Development, Canadian Pacific Railway.

In Nova Scotia common brick and drain tiles are manufactured at Annapolis, Middleton and Avonport, on the Dominion Atlantic Railway, as well as at a few other places.

In New Brunswick clay is found in Frederickton, St. Stephen and St. John. It is reported that New Brunswick possesses certain shale beds adapted for making those high grades of clayware which cannot be produced in the Provinces of Quebec or Ontario where these raw materials are absent. Clay products manufacturers will probably find it to their advantage to locate works for the production of materials not only for home consumption but also for export.

In Quebec clay is found at numerous places, but is generally fusible at low temperatures and does not require to be heated in an electric furnace. This would mean that the clays of Quebec in general are suited to non-refractory purposes, but are no good for refractory work, with the exception of the deposit at St. Remi d'Amherst. Among the places where clay is found in Quebec are the following: Angus (on the Quebec Central Ry.), Ascot, Bridge End, Kirk's Ferry, Lachute, L'Assomption, Lennoxville, L'Epiphany, Quebec City, Roebuck, Scott's Junction, Spencerville, St. Johns, St. Lazare, St. Lin, Ste. Therese, St. Victor de Tring, Vaudreuil, and Webster Siding. At St. Remi d'Amherst a good firebrick can be made from the less pure portions of the china clay deposit.

In Ontario clays are found suitable for brick, tile, pottery and sewer pipe manufacture, porcelain and refractory linings have also been produced. A number of clay producing localities in Ontario are: Arnprior, Belmont, Billings Bridge, Bolton, Brampton, Carleton Place, Cobourg, Cooksville, Fort William, Glenannan, Hamilton, Ingersoll, Islington, Lindsay, London, Milton, North Bay, Ottawa, Owen Sound, Pembroke, Proton, Sault Ste. Marie, Streetsville, Sudbury, Thamesville, Toronto, Tweed as well as several other places.

The total value of clay products sold during the year 1921 amounted to \$8,335,000, consisting of \$5,600,000 worth of brick, \$1,327,000 worth of sewer pipe, \$325,000 worth of drain tile, and \$1,000,000 for other clay products.

In 1921 clay products were exported from Canada to a value of \$32,707 (\$1,858 to the British Empire and \$30,849 to foreign countries).

The total imports into Canada for the fiscal year 1921 were \$10,781,592 (\$5,077,808 from the British Empire and \$5,703,784 from foreign countries).

Free: Clay, fire brick (of a kind not made in Canada), fire brick (magnesite), fire brick (silica), artificial teeth (unmounted), crucible clay or sand.

Dutiable: Bath brick, building brick, paving brick, fire-proof brick, fire-proof building tile, drain pipes, sewer pipes, building blocks and hollow tile.

Tariff

	Preferential Per cent.	General Per cent.
Bath Brick	12½	22½
Building Brick	12½	22½
Paving Brick	12½	22½
Fire Proof Brick	12½	22½
Drain Pipes	25	35
Sewer Pipes	25	35
Building Blocks	12½	22½
Hollow Tiles	12½	22½



CHART NO. 2-X-209 A 5 F 200-2400



Automatically written Records End Disputes

Kiln owners who operate with Thwing Pyrometers and Thwing Charts can give specific instructions regarding temperature maintenance to their men before each burn. It's simply a matter of marking the chart with lines for your burner to follow.

The Record of Each Burn is a Check on Your Burner's Efficiency

It shows at a glance, leaving no room for argument, whether instructions are followed. As a record for future work it provides an ever-ready reference chart on which to base other operations.

These advantages and the fact that it assures maintenance of uniform temperatures make the Thwing Pyrometer an investment in economical production.



Thwing

PYROMETERS

Thwing Instrument Company
3347 Lancaster Ave. Philadelphia, U. S. A.

114

The Western Brick Co.,
Danville, Ill.

The Milton Pressed Brick Co., Ltd.,
Toronto, Canada.

The Standard Brick & Supply Co.,
Charleston, W. Va.

The West Virginia Brick Co.,
Charleston, W. Va.

The Richlands Shale Brick Co.,
Mansfield, Ohio.

The Mansfield Shale Product Co.,
Mansfield, Ohio.

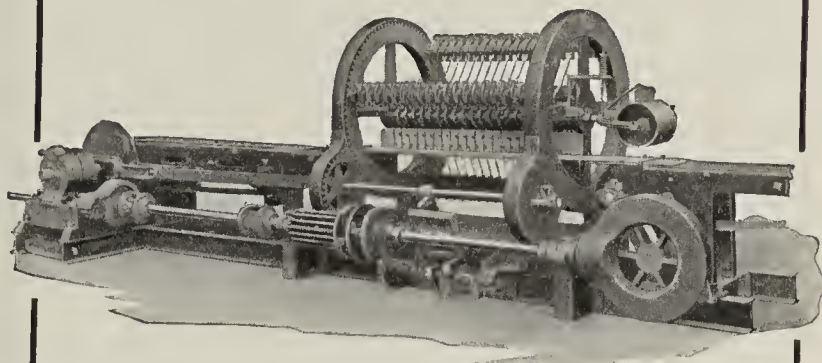
The Cambria Clay Products Co.,
Blackfork, Ohio.

The Milliken Brick Co.,
Wilkinsburg, Pa.

The American Fire Brick Co.,
Spokane, Wash.

The Mitchell Brick Co.,
Cincinnati, Ohio.

Will Install Freese Cutters



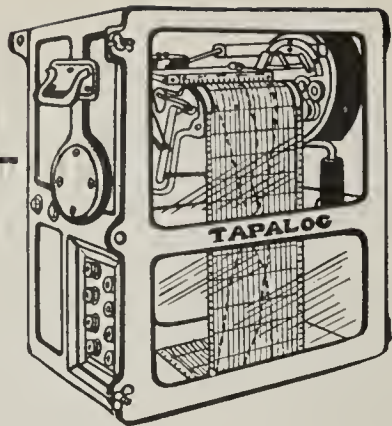
Freese Rotating Automatic Cutter

Where a Continuous Production
of Perfect Brick is Essential, Freese
Cutters are Usually Selected.

E. M. FREESE & COMPANY

GALION, OHIO

Dependable Machinery of Proven Efficiency



When it comes to Pyrometer Equipment

Clay products manufacturers who have never known WILSON MAEULEN PYROMETERS are, one after another, coming to learn that they afford the truest combination of

*Accuracy
Durability and
Convenience*

in burning ware.

WILSON-MAEULEN COMPANY
Concord Ave., and E. 143rd St.
New York City



THE BUILDING SITUATION

(Continued from page 424)

and every effort is being made to add to the working force. Common labor is drawing from 30 to 50 cents an hour at the different plants.

Philadelphia

The month of January established a new record for building construction at Philadelphia, showing an advance of more than \$2,000,000 over the figures for the corresponding month of last year. The building department records tabulate a gross of \$6,504,000 for the period, of which more than \$1,160,000 is represented by two-story brick dwellings. In this connection, work was started in this month on no less than 235 buildings of this type.

Philadelphia brick plants are running full, with all possible available men. The present call for local distribution is practically unprecedented in the history of the local industry, and every plant has sufficient orders on hand to insure the present basis of production for a number of weeks to come. Wholesale prices range from \$20 upwards a thousand.

Baltimore

Heavy building operations at Baltimore produced a new high figure for January construction in the city, the valuation of permits coming to \$4,400,000, as against a total of \$3,700,000 for the same month a year ago. While residential work forms a large proportion of the gross, industrial building is reaching a point of no mean order in this city.

Washington

The capitol city is more than holding its own in the eastern winter construction boom, and the month of January rounded out a total of \$4,300,000, for new operations and alterations. This is \$2,100,000 in excess of the figures of January, 1922. The month of February is maintaining at close to a similar status and an equally high aggregate is expected.

Chicago

The building totals for Chicago, as represented by the value of permits issued by the building department for the month of February was \$27,712,000 as compared with \$18,611,000 in January and \$13,493,000 in February, 1922. Home building continues at about the same pace, but industrial and business buildings showed up greater in February. Several skyscrapers brought the February total to its high figure. The following table shows how the permits were divided between the different classes of buildings:

Permits	Feb. '22	Jan. '23	Feb. '23
Apartments	192	283	263
Residences	288	395	291
Industrial	116	127	147
Others	38	67	156
Total	634	872	857
Frontage (ft.)	20,998	30,073	25,886
Cost	\$13,493,000	\$18,611,000	\$27,712,000

San Francisco

The building programs for the cities of the bay region and the central portion of California are going ahead with very little slowing up, with the result that the demands on the producers for common brick, terra cotta, hollow tile and face brick are unusually heavy for this time of the year. Happily production is constantly increasing and plants are being steadily improved. While the ceramic industry in the central portion of the state has lagged in many of its phases, the wonderfully growing demand has led to more careful investigation of deposits with very satisfactory results, and some new ventures have been undertaken that look very promising.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

The Key to Greater Marketing

THE ECONOMIC DISTRIBUTION of the absolute essentials, food, clothing, shelter and fuel, is a fundamental problem which concerns every person in the United States. In earlier times, there was no problem of distribution because the people lived simply and produced their own foodstuffs, clothing materials, and found fuel and materials from which to provide shelter close at hand. They enjoyed only such comfort and convenience as they could furnish for themselves.

Country's Development

Pioneers traveled into new country and established communities and developed resources. Railroads were built, goods were transported and time and distances became factors in the relations and transactions of men. Tradesmen and merchants facilitated the exchange of commodity for commodity and surplus for comfort. The standard of living constantly advanced and an ever increasing proportion of the population entered the fields of industry, commerce and finance. The consumer came to accept unusual service and convenience as a matter of course and finally to demand more.

New Problems of Distribution

The country developed and autos, phonographs, and other new products each year added to the burden of railroad transportation. Shipping facilities, which at one time were more than ample, became congested. This condition had a direct influence on the manufacturers' problems of distribution. Proof of this is offered by the coal industry. The frequently recurring shortages made it imperative that coal be stored at some point where it could be gotten to the consumer quickly. The logical place was the dealer's yard. This same situation obtains in the construction industry to a very great extent. Not only is the supply of building materials being restricted by railroad carrying capacity but the high freight rates limit the practical radius of shipments. Therefore, the manufacturer, in order to produce at capacity, must distribute more intensively in a confined area. The dealer is the logical man to solve the

problems of supply and distribution.

Now, with the development of this country and the changing of these various economic conditions, advertising and other media were being evolved to get into the consumer's favor. Dealers in building materials increased their usefulness to their community and thru the help of the lumbermen, they distributed home booklets and extended plan service. Thru the cement manufacturers, they were enabled to give detailed advice on construction. In this way the dealer now gives service to the consumer beyond merely supplying materials.

Organized Dealer Power

The dealer, moreover, has progressed in other ways. He has learned the value and power of organization and has banded himself into associations. A recent incident is reported of how a manufacturer was about to ignore a certain dealer in a small town and sell a job direct. The dealer immediately called up his association secretary, who in turn got in touch with a prominent dealer in another city who had just placed a large contract with the same manufacturer. This dealer cancelled his contract immediately and the manufacturer was impressed with the fact that that state had an organization which believed in dealer distribution for the small dealer as well as the large.

Manufacturers Neglected Dealer

Now while the dealer was establishing himself more firmly, the public becoming more educated to service, the lumber and cement manufacturers co-operating with the dealer, the clay manufacturer improving his production methods, what was the latter's development in distribution? Is it not true that he has failed to recognize the dealer? That the clay products manufacturer considers the dealer in terms of his experience with him ten years ago?

In some instances, manufacturers, individually and thru associations, improved their markets by advertising to the consumer. The returns from this advertising were splendid but would have been even larger had the dealer

been included in the merchandising plan.

Startling Facts from Questionnaire

On page 496 of this issue is an article reporting the returns of a questionnaire sent to building supply dealers in towns having less than 25,000 inhabitants. The results bring out some startling facts and an analysis of them shows conclusively the importance of the dealer.

While the dealer shows a lack of uniformity on many points, we know that he is constantly amending his ways. He has progressed considerably in the last few years and his importance as a merchandiser of building materials will increase steadily.

Consider These Points

There is unmistakable evidence that merchandising thru the dealer is a question assuming greater importance each day. Every clay products manufacturer must face these points squarely: 1. The dealer, because of his long standing and wide acquaintance in his community, has built up good will that is effective in adjusting claims, making collections, and eliminating bad debts. 2. This established good will has also given the dealer a powerful instrument to get business in his community for whatever materials he desires to push. Advertising builds up a favorable attitude and creates desire for a product, but it is well known that it is not effective in concluding sales. Obviously, the dealer can counteract the effect of consumer advertising if he does not happen to be handling the product and is not favorably disposed towards it. 3. It is impossible to sell a product fully unless all prospects can be reached. The clay industry with its limited organization cannot hope to reach its 600,000 prospects a year, of which fully 300,000 are in town and villages under 25,000 inhabitants. A dealer in one village of less than 200 population sells annually two cars of common brick, one car face brick, five M fire brick, ten cars hollow tile, one car drain tile, and one car sewer pipe. 4. Selling thru the dealer will permit wider distribution of product and an opening up of a market which is four times greater than the present market reached. This will en-

(Now turn to page 500)

What Can the Dealer Do for You?

Figures Show Dealers Could Sell 20,000,000,000
Brick Annually — Summary of Questionnaire
Sent to 500 Dealers Brings Out Startling Facts

OF THE MANY COMPLEX PROBLEMS confronting the clay products manufacturer today there is none more baffling than distribution. Transportation conditions are restricting both radius and volume of shipments. These and other difficulties relative to satisfactory volume of sales at reasonable cost are causing unstable conditions in the industry. To compensate for these wavering influences counter-activities must be engaged. This brings us to the use of one of the solutions to the problem, namely, distribution thru the building supply dealer. However, that this is the solution to the problem is a much mooted question in the industry.

Manufacturers Divided on Dealer Question

Many clay products manufacturers favor 100 per cent. dealer distribution and on the other hand, many are equally as strong against it. While it is true that on any subject a few will always agree with the majority in the clay products industry, when it comes to the dealer problem there are about the same number on each side of the fence. Even those on the same side of the question have widely divergent views.

The time has come when it is essential that the clay industry evaporate its conflicting and prejudiced views and come down to the mother liquid of fundamentals. The problem of clay products distribution is not so complicated that a policy of universal good cannot be formulated.

After all, the question of whether or not it is advisable to distribute clay products thru the building supply dealer, simmers down to the following fundamentals. Is it practical? Is it advantageous to dealer, manufacturer, and consumer? Is it profitable?

Recognizing that the dealers themselves could throw a great deal of light on these questions, a questionnaire was addressed to them, asking for the information in answer to

the pertinent questions such as those contained in the accompanying illustrations.

This questionnaire was addressed to 498 dealers located in towns under 25,000 inhabitants in nine different states. The 1920 census shows the distribution of the population in the United States as follows:

Population	Number of Towns
Under 1,000 inhabitants.....	125,929
Between 1,000 and 25,000.....	5,800
Over 25,000 inhabitants.....	251

By sending the questionnaire to dealers in cities under 25,000, it was felt that information would be obtained from dealers not thoroly covered by manufacturers' salesmen. Moreover, results from this questionnaire would give information on conditions in small communities that heretofore has remained in the dark.

Could Sell 20,000,000,000 Brick Annually

Over 90 dealers replied to this questionnaire and of these about 72 gave information of direct interest to clay products manufacturers. The complete replies from 47 of these dealers are tabulated briefly in a table published on another page.

Of the dealers located in cities and towns under 1,000 population, 16 replied, 14 of which number gave as their annual sales of common brick, a total approximating 735,000. If the above figures would hold true of all towns of the United States of similar population, the amount of common brick that could be sold in cities under 1,000 population alone would amount to 6,615,000,000 brick annually. This is more than the present entire annual production of common brick. The city of Chicago alone, in 1922, consumed approximately 750,000,000 brick. The city of New York consumed more than this amount. If the consumption of common brick in cities over 1,000 were added to the above figures, it is estimated that the potential market for common brick which

J. M. Adams on the Dealer Question

In connection with comments from dealers regarding the problem of distributing clay products and the manufacturers' attitude toward the dealer, it is interesting to get the view point of a prominent manufacturer. Herewith is reprinted a letter which was received from J. M. Adams, secretary and general manager of the Ironclay Brick Co., Columbus, Ohio. Mr. Adams is also president of the American Face Brick Association. He says:

"I feel sure that there is a great lack of co-operation between the face brick manufacturer and the building material dealers thruout the country.

"The brick manufacturer has three ways of distributing his product: first, by selling direct to consumer thru his own selling organization; second, by selling to brick merchants and, third, thru brick peddlers. What I mean by the brick merchant is the dealer who carries a stock of brick in his warehouse and is ready to take care of any ordinary brick order from his stock; the brick peddler is the dealer who with a sample brick under his arm attempts to sell an occasional job. It has only been in the last few years that we have had the brick merchant and

even today there are many towns of 40,000 or 50,000 population where a customer cannot buy a brick mantel.

"The building material dealer is losing a great opportunity to increase his business by not carrying face brick in stock just as he carries cement, flue lining and sewer pipe.

"A lumber dealer would not get far in developing his business if he carried no lumber in stock and sold only from sample; he would certainly be a joke as a lumber dealer, but not any more of a joke than the face brick dealer who does not carry a stock of face brick in his warehouse.

"If all of the four or five thousand building supply dealers in the United States were carrying face brick in stock, it would certainly result in selling tens of millions more face brick than are now being sold."

"I wish to commend you for the position which you have taken in the Brick and Clay Record on this subject, and in this letter wish to state that these are only my personal views and in no way am I representing the American Face Brick Association in the above remarks."

now exists in the United States would be over 20,000,000,000 or about four times as much as has been produced annually in recent years.

Sales Could be Increased Tremendously

These figures, of course, are rough estimates but give a fair indication of the opportunity for intensive distribution of clay products possible thru the dealer if he were cultivated. What is true of common brick is also largely true of other

lumber, find it more difficult to sell clay products, find clay products more expensive to handle, and so forth, is because they have not yet seen the light and for this the manufacturer alone is to blame.

Should Adopt 100 Per Cent. Policy

The dealers maintain that a 100 per cent. dealer distribution policy should be adopted by all clay manufacturers because the dealer, if permitted to handle only small jobs, has a lower turnover and, therefore, requires greater profit in handling clay products. This in turn reduces his opportunity, and indirectly the clay manufacturer's opportunity for sales in competition with other products.

The dealer, it is pointed out, is closer to the consumer; his sales expense is not carried by the handling of clay products alone. He helps to get a job started quicker and supplies stock when full car loads do not arrive on time. Moreover, he can furnish a job on small orders. In other words, he is able to give everything that the word "service" implies.

Dealer Can Reach More Customers

It is practically impossible for salesmen of clay products manufacturers to reach all prospects at the proper time. That "there is many a slip twixt cup and lip" is well-known by manufacturers who have sold a contractor or builder only later to find him won over to some other product at the time the contract was let.

It is estimated that somewhere approximating 600,000 building permits are issued in the United States each year. Half of this number of permits is issued in towns of less than 25,000 population—the towns not frequently covered by manufacturers' salesmen. It is obvious that a clay products manufacturer cannot economically maintain a sales force to reach all prospects.

Dealer's Acquaintance Helps Sales

The dealer on the other hand, knows what is going on in his locality. He is well-known in his community and has the customer's good-will before he ever becomes a purchaser. The dealer is better situated to adjust misunderstandings. By carrying his stock the dealer can bring in business for the manufacturer at a time when the manufacturer might be restricted in capacity, due to coal or freight congestions.

Sample of Questionnaire Sent to Dealers by Brick and Clay Record. About 100 Answers Were Received.

Population 897

What gross profit do you figure on Fire Brick \$15 per M? Sewer Pipe 25¢ per M? Hollow Tile \$10 per 1000? Drain Tile 10¢ per M? Common Brick 15¢ per M?

Is this sufficient profit to make it worth your while? No, considering heavy unloading charges, etc.

How does it compare with your profits in other building materials? Lower.

What do you think would be a fair net profit? Lowest fair net profit should be 25% on the common line, figured after invoice price, handling, etc. is added.

Do you find it more difficult to show the advantages of brick, tile, etc., than other building materials such as metal, lath, lime, etc.? We sold hollow building tile here for years before other dealers, and not difficult to do so, but would like a profit equal to what we get on other materials.

Is it more expensive to finance the handling of clay products? Not more so than other lines.

If you do not handle clay products, kindly outline your various reasons.

Do you contemplate handling clay products in the near future? We expect to continue to do so.

How much do you sell annually or do you estimate you could sell annually of Common Brick? 3 cars here. Fire Brick? 1 car. Sewer Pipe? 1000 ft. Drain Tile? 5-15 cars.

Use back of this sheet in replying if necessary.

Please give your complete address and name on the back.

What gross profit do you figure on Fire Brick \$15 per M? Is this sufficient profit to make it worth your while? No, only on large orders.

What do you think would be a fair net profit? 25 to 30%.

What do you figure your cost of handling per M? 3.00.

Please fill this out and return so that we may complete the survey of data which will be of wide interest to both manufacturer and dealer.

clay products. If 100 per cent. dealer distribution was the present policy of the clay products industry, every plant in the country would be operated at more than capacity according to these estimates. This would be true if the dealers were given sincere and real cooperation in every sense of the word. This means that they should be given literature, shown how to use it and backed up by field engineering service, or in other words, a combination of the service rendered to dealers by the cement and lumber industries. With the present wave of more permanent type of construction running thruout the country and with the dealer more than anxious to cooperate, more intensive clay products distribution should be easily possible.

Point Out Manufacturers' Mistakes

The dealers commented quite liberally on their views of the status of the dealer-manufacturer situation. For the most part, of course, the dealers pointed out the erring ways of the manufacturer. Space does not permit reproducing each dealer's opinion, but in addition to the several replies quoted below, an analysis of the returns reveals the following.

In general, there is a very great lack of uniformity between the dealers themselves on methods and cost of handling clay products, but a great deal of the responsibility for this situation rests with the manufacturer. The clay products manufacturer has never, except in a few isolated cases, coached the dealer and worked with him on the distribution problem.

There is plenty of evidence in the returns to show that clay products can be handled easily, properly, and to the mutual advantage of producer, dealer, and consumer. It is apparent that the reason why some dealers prefer pushing

The dealers believe that the losses to manufacturers due to bad debts and collections can often be reduced thru the dealer handling the product.

The dealer who is a fellow citizen in his community, always has the advantage over an outsider. Since he has

Tabulation of 162 replies received from dealers in answer to questionnaire on products handled by them.*

Product	No. Dealers Handling	Product	No. Dealers Handling
Aggregates (Stone, Gravel, Sand)	67	Wall Plugs, etc.	59
Portland Cement	105	Plastering Materials (Lime, Plaster) . . .	101
Clay Products	72	Prep. Rfg. Products (Incl. Asbestos, Asphalt, etc.)	52
Brick, Common	73	Stucco & Cement . . .	43
Brick, Face	72	Stucco, Magnesite . . .	41
Brick, Fire	93	Wall Board, Fibre and Gypsum	92
Sewer Pipe	86	Fibre Wall Board, only	3
Tile	81	Gypsum Wall Board, only	3
Coal	32		
Gypsum Tile	47		
Lumber	38		
Metal Lath	91		
Corner Bead	88		

*Tabulation compiled by Building Supply News and includes towns and cities of all sizes.

Tabulation of Data on Questionnaires Returned by 47 Building Supply Dealers

State Dealer Located In	Population of Town in 1920	GROSS PROFIT DEALER FIGURES ON						Is This Sufficient Profit To Make It Worth Your While	How Does Profit on Clay Products Compare With Those on Other Building Materials	What Would be a Fair Net Profit	Is It More Difficult to Sell Clay Products	Is Financing of Clay Products More Expensive	What is Cost of Handling Face Brick per M	HOW MUCH DO, OR COULD YOU SELL ANNUALLY					REMARKS (See Notes)	
		Common Brick per M	Face Brick per M	Fire Brick per M	Hollow Tile per Ton	Drain Tile per M	Sewer Pipe per M							Common Brick	Face Brick	Fire Brick	Hollow Tile	Drain Tile		Sewer Pipe
Conn.	1,175	33 1/2 %	\$2.00	33 1/2 %	12 1/2 %		50 %	Yes	About Equal	As Reported	No	No	\$2.00	100 M	10 Cars	4 M	5 Cars	4 Mixed	1 Car	1
Ga.	13,252	\$2.00		28 %	28 %		12 1/2 %	Not on Face Brick	About Same	10 % on Sales	No	No	\$2.00	100 Cars	2 Cars	5 Cars	2 Cars	1 Car		
Ill.	11,555	25 %	\$4.00	25 %	25 %	3c/ft.	25 %	Where Sales are Large	About Same	\$5, Face Brick \$8	No	Yes	\$6.50	150 M	50 M			10 Cars		
Ill.	1,643	25 %	\$8.00						Less		No									
Ill.	8,116	\$4.00							Little Less	20 %	No	Yes		200 M	50 M	1 M	4 Cars	8 Cars	2 Cars	2
Ill.	2,974	10-25 %		33 1/2 %	30 %	20 %	20 %	Yes	Higher, Due to Breakage		No	Yes		3 Cars	2 Cars	1 Car	1 Car	2 Cars	2 Cars	
Ill.	1,592	30 %	40 %	30 %	25 %	20 %	25 %	Not on Face Brick	Same		No	No	25 %	14 Cars	5 Cars	1 Car		30 M	1,000 ft.	3
Ill.	3,000	20 %		30 %	30 %	\$10/M	30 %	No, except S. P.	Less	33 1/2 %	No	No		50 M	25 M					
Ill.	251	20 %		20 %	20 %			Yes	Same	25 %	No	No		10 Cars						
Ill.	863	\$2.25						Yes	Very Favorably	10 %	No	No		4,000 M	1,500 M	10 M	100 Cars	6 Cars	25 Cars	4
Ill.	23,785							Yes	Same	\$1 on C. B., 10 % S. P.	No	No		8 Cars	5 Cars	10 M	100 Cars	12 Cars	4 Cars	5
Ill.	15,873	50 %		10 %	10 %			Yes, on Quantities	Favorably	12-15 %	No	No		50 Cars	5 Cars	1/2 Car	3 Cars	2 Cars	25 Cars	
Ill.	1,146	25 %		20 %	20 %			Yes	Two-Thirds	20 % Net	No	No		4 Cars	2 Cars	3 Cars				
Ill.	10,986	20 %		30 %	30 %			Yes	Same	15 %	No	No		2 Cars	2 Cars					
Ill.	737	30 %						Yes	Same		No	No		10 M	1 Car	5 Cars	5 Cars	2 Cars	2 Cars	
Iowa	130	10 %	\$11.00	25 %	10 %	10 %	25 %	No	Same	20-25 %	No	No	5 %	2 Cars	1 Car			10 Cars	1 Car	6
Iowa	1,443	\$4.00		33 1/2 %	33 1/2 %	33 1/2 %	33 1/2 %	Yes	Same	20-30 % on C. B.	No	No	\$2-\$3	10 Cars	3 Cars	3 Cars	4 Cars	12 Cars	7 Cars	
Iowa	24,057	33 1/2 %	\$25.00	33 1/2 %	33 1/2 %	\$6.00	\$6.00	Yes	Same	40 % on C. B.	Yes	Yes	\$6.00	50 M	50 M	15 M	5,000 M	X		
Iowa	24,057	\$6.00						No	Same	10-15 %	No	No		3 Cars	2 Cars	2 Cars	2 Cars	10 Cars	2 Cars	
Iowa	1,466	\$7.00						Depends	No	50 %	No	No		2 Cars	1 Car	1 Car	10 Cars	8 Cars	2 Cars	
Iowa	6,627	10 %						Yes	Less	15 %	No	Yes		2 Cars	1 Car	1 Car	5 Cars	5 Cars	1 Car	
Iowa	336	25 %						Yes	5-15 % Lower	10 %	No	No		1 Car	1/2 Car					
Iowa	763	15 %						Yes	Satisfactory	10 %	No	No	\$1.50	5 Cars	\$40,000	total sales	es of all	clay products	3 Cars	7
Kan.	2,857	33 1/2 %						Yes	Lower	8-10 %	No	Yes	\$7.50	5 Cars	1 Car	1 Car				8
Mass.	13,471							Yes	Lower, But Faster Turnover	33 1/2 %	Yes	No		250 M	20 M	20 M			3 Cars	9
Mass.	12,979	\$10.00	\$20.00	\$20.00	10 %	X	X	Yes	Doesn't Compare	33 1/2 % + Cartage	Yes	No		5 Cars						
N. J.	7,025	\$2.00	\$15.00	15 %	10 %	1/2	1/2	Yes	About 5 % Better	10 %	No	No		?		?	2 Cars	2 Cars	3 Cars	
N. J.	1,050	25 %	35 %	30 %	30 %	40 %	45 %	Yes	Good	15 %	No	No		250 M	150 M	75 M	2 Cars	5 Cars		
N. J.	19,561	\$3-\$5	\$5-\$10	\$5-\$8	\$5.00	\$8.00	20 %	Not on All Items	Lower	8 % - \$3-\$6 Face B.	Yes	No	\$3 Car (\$5 St'k)	250 M						
Wis.											No	No								
Wis.	1,049	\$4-\$5	33 1/2 %	33 1/2 %	\$8-\$15M	\$10-\$15	50 %	Yes	Fair	6-10 %	No	No	\$3.50	8 Cars	3 Cars	1/2 Car	4 Cars	2 Cars	2 Cars	10
Wis.	632	20 %	\$2.00	10 %	10 %	20 %	20 %	Not on Face Brick	Lower	5-8 % - \$5 Face B.	No	No	\$2.00	15 Cars	2 Cars	10 M	10 Cars	2 Cars	2 Cars	11
Wis.	892	\$5.00	\$15.00	25 %	\$10.00	25 %	25 %	No, Only on Car Lots	Lower by 10 %	25 %	No	No	\$3.00	3 Cars	5 Cars	10 M	15 Cars	Few		
Wis.	17,563		\$10.00	25 %	25 %	35 %	35 %	Yes	Same	5 %	No	No	\$6.00	10 Cars	10 Cars	3 Cars	6 Cars	4 Cars	4 Cars	
Wis.	3,707	\$6.00	\$20.00	\$20.00	25 %	35 %	35 %	When Volume is Sufficient	O. K.	\$5 Face Brick	No	No	\$5.00	2 Cars	3 M	1/2 Car	1 Car	1/2 Car	4 Cars	
Wis.											No	No								
Wis.	21,284	\$5.00	\$10.00	\$15.00	\$2.50		33 1/2 %	Yes	About Same	33 1/2 %	No	No	\$3.00	25 Cars	20 Cars	4 Cars	6 Cars		15 Cars	12
Wis.	7,243	30 %	33 1/2 %	33 1/2 %				Yes	Same on Equal Turnover	10 %	No	No	\$2.00	300 M	100 M	5 M	45 M		3 Cars	13
Wis.	2,569	\$5-\$7	\$10.00	\$20.00	25 %	20 %	30 %	No	Same	10 %	No	No	\$3+15 %	4 Cars	2 Cars	1 Car	5 Cars	3 Cars		
Wis.	5,951	\$6-\$7	\$12.00	\$20.00	20 %	15 %	25 %	Not on Face Brick	About Same	20 %	No	Yes	\$5.00	10 Cars	100 M	50 M	25 Cars	25 Cars	40 Cars	
Wis.	23,427	20 %						Hardly	About Same	10 %	No	Yes		300 M						
Wis.											No	No								
Wis.	1,373	5	\$8.00	15		5	40 %	Yes	Same	10 % - \$4 Face B.	No	No	\$3.00	100 M	25 M	5 M		10 M	2 Cars	
Wis.	464	\$7.00		\$5.00	\$15.00	\$5.00	25	Yes	Favorably	10 %	No	No		40 M	40 M	10 M	5 M	25 M	1,500 ft.	
Wis.	3,257	\$2.00		\$1.00	\$1.00	\$5.00	25	Yes	Less by 8 1/2 %	20 %	No	No		150 M	150 M	10 M	5 M	25 M		
Wis.	994	25 %	33 1/2 %	25 %	25 %	50 %	25 %	Yes	Less by 8 1/2 %	1/2	No	No		20 M	1 M	2 M	5 M	15 M	2 Cars	
Wis.	3,415	\$8.00	\$20.00	\$20.00	50 %	50 %	50 %	Yes	Yes	10 %	Yes	Yes		30 M	25 M	2 M	2 M	2 Cars	2 Cars	
Wis.											No	No								
Wis.	140	25 %	\$8.00	25 %	\$10.00	\$5.00	25 %	Yes	Less, Considering Labor	20 %	No	No		2 Cars	1 Car	5 M	10 Cars	1 Car	1 Car	14
Wis.	5,107	\$5.00		\$10.00	\$10.00	\$5.00	25 %	Yes, This is in Small Lots	Little Less	30 % over Cost	No	No		3 Cars	4 Cars	3 M	3 Cars	3 Cars		

capital invested in his stock of building materials, it is but natural that he will push them hard. If clay products are not handled by him then substitute materials will get very good representation thru him. On the other hand, if clay products are handled, the dealer has money invested in them and it is only natural that he will at least not discourage the use of clay products which he naturally would do were he not handling them. This, in a great many instances, is an important point.

Bad Debt Losses Less Thru Dealer

How the dealer can be an active force working against the interests of the clay manufacturer where he is not handling clay products—stronger perhaps than the direct competitors of clay manufacturers, is intimated in the last sentence of the following comment from a dealer in a town of 15,000 population. "It would seem that clay manufacturers would find if they are successful in their campaign to eliminate the dealer, that their losses on bad debts and their complaint adjustments would cut a big hole in their profits. The dealer is always near at hand and can watch these things more closely than the producer. It is true, of course, that a few large brick manufacturers are quite successful in doing without the dealer but they work only the big jobs. If all their competitors worked the same game, it would resolve into mighty stiff competition for the big jobs and pretty much the same thing for the little ones. If the dealer gets only the small jobs, he will lose interest in clay products with the result that his attention will be devoted to those things which net him a little profit."

Little Profit for This Dealer

The nub of the complaint of nine out of every ten dealers is frankly expressed in this letter from a dealer in a town under 1,200 inhabitants. He says: "We do not consider that we receive sufficient profit to make it worth while to handle clay products. In support of this we give you the following:

"A company from whom we buy most of our brick quotes us a price of \$13 per M on common brick. They quote the trade on the same brick \$14 per M, allowing us as a dealer a margin of \$1 per M. This will not much more than pay the unloading of cars. The freight is \$2.75 per M. We retail the brick at \$18 per M which gives a gross profit of \$1.25 per M after the brick are placed in our yards, or about 7½ per cent. on our original investment, carrying charges not considered.

"On drain tile, our margin of profit is larger, but the above illustration is about what a dealer can expect on clay products at present. We cannot see why clay products should not pay the dealer as fair a margin of profit as lumber, building materials and most other commodities he sells."

"Not Smart Enough" for Big Jobs

The dealer loses interest in clay products handling when he is permitted to take care of only the small jobs, according

to one in a city of a trifle over 1,000. He says: "We are considered of only large enough caliber to sell the small dabs for chimney tops, private sewers and drains where only small quantities are needed. If a carload is needed, that is too big for us. We are not considered to be smart enough to make such a 'large' sale. This probably is one reason why the average lumber dealer pushes lumber in preference to clay when the two come in competition with each other.

"We certainly do not get a square deal from the average clay manufacturer. The dealer handles various kinds of building materials. If he gets equal consideration from all wholesalers, I am sure he would reciprocate. He surely will push the articles that pay best for him."

Advantages of Dealer Distribution

The following, from a dealer in a city of a trifle over 13,000 inhabitants, expresses briefly the advantages of dealer distribution: "We believe in dealer distribution because: 1. We are closer to the consumer. 2. Our sales expense is not carried by clay products alone. 3. We can help a job to get started quicker. 4. We can supply the stock when full carloads do not arrive on time. 5. We can finish a job without the necessity of a contractor taking a full car when only a few units are needed. 6. We believe that these services should be recognized by the manufacturers and protection given on full carloads."

Some interesting information is contained in the following dealer letter: "Briefly let me give you my views why, if the manufacturers of face brick distribute their material direct to such as schools and other large buildings, they should not expect a dealer to carry their product in stock, just to take care of the small jobs, such as chimneys, porches, and so forth.

Creates Market for Face Brick

"Just to illustrate to you what we have done in, a town of 6,000 inhabitants, in the way of face brick, in 1915 we sold the first face brick job in our city, a church job, and after the building was completed there were a few thousand brick left, and we returned them to our yard. We then advocated face brick for use of chimney tops, and the result is that today there is hardly a new house, or a replacement of old chimney that does not use face brick, and we have sold many cars of brick for that very purpose.

"In 1922 we sold over 300,000 face brick, and the manufacturer who is dissatisfied with dealer distribution is the one who has the wrong dealer to represent his product, namely the lumber dealer. He will push lumber in preference to brick for the reason that I think they can make more money on lumber. That has been my experience in this city, and is my own opinion, so why not cut out the lumber man and have a building material dealer represent them. I am going to advocate face brick for homes more than ever and just as long as the manufacturers will stay with us. A fair differential to make between the consumer and dealer should be \$2 per thousand and see that the dealer gets it.

NOTES REFERRING TO REMARKS IN TABULATION OF DEALER QUESTIONNAIRE ON OPPOSITE PAGE

1. Not protected; manufacturers' salesmen sell direct; figure \$2 per M loss on breakage in cost of handling. 2. Don't push sale of clay products as much as lumber because more money in lumber and lumbermen don't take away sales by selling direct. 3. On account of high labor can hardly figure on less than 30% gross profits—30% now is not as good as 22½% five years ago. 4. Could increase sales materially if allowed protection. Think net profit very fair. 5. If delivered from cars, figure \$1 per ton handling charge; from yard 25% on cost. Prefer handling clay products because cleaner and can be sold in larger quantities. 6. Take differential allowed by manufacturer on hollow and drain tile. 7.

Work against clay products because when it comes to carload business dealer is quoted higher price than manufacturer gives to consumer. 8. Dealing in clay products is expensive because of slower turnover; try to get 26 to 28% gross profit on all sales made; building practically all lumber and brick hard to sell altho have advised it and showed Ideal Wall. 9. Sell common brick at \$10 gross profit but at \$1 by car. 10. Confine our purchases to manufacturers who recognize dealer's rights. Manufacturers set a differential of \$2 per M out of car. 11. Common brick handled until two years ago when manufacturers began selling to consumers at wholesale prices. Now sell more hollow tile. 12.

Believe protection should be given dealer and a fair differential. Direct sales should be discouraged. Why should dealer give clay products manufacturer service by handling mortar ingredients for consumer if manufacturer does not cooperate? 13. Gross profit on hollow tile f. o. b. cars, 50c; common brick, 10%. Would handle all clay products if had room. 14. Gross profit figures apply to lots of 1,000 and less. In large lots and car lots, the profit is from \$1 to \$3 per M over cost. Annual sales estimated for small work only; does not include complete brick buildings or sewer pipe for city work.

"The same thing applies to sewer pipe manufacturers. It is not fair from a dealer's standpoint that when a sewer job comes up in a city to quote a contractor direct the same price that he would a dealer, and then expect the dealer to carry a complete stock in his yard for the small consumer."

That manufacturers are not all alike in their dealings with the building supply dealer is emphasized in the following letter from a dealer in a town of less than 900. He says:

"The general run of manufacturers of brick and clay products sold to the dealer or direct to the job, whichever best suited him to do, and if he sold thru a dealer alone, the dealer had only a very small margin, so small that it was only a source of trouble. The manufacturers do not seem to take into consideration the fact that the dealer has to carry his stock some time before it is moved, and the dealer never gets nor can he expect as prompt pay as the manufacturers insist on if they sell direct. This does not apply to all manufacturers of tile and clay products but to most of them. We have had some very fair dealing with a few."

Could Force Manufacturers to Take Definite Stand

A dealer in a city of approximately 3,700 gives a hint in his remarks that is coming to be followed effectively by dealers. The idea he expresses if followed by all dealers, would eventually compel clay products manufacturers to class themselves as a direct to consumer or as a 100 per cent. dealer distribution concern. This dealer says: "I think that a manufacturer should establish himself as a direct to consumer seller or thru the dealer. That will show him which way is best. Dealers should report every car that is sold direct to consumer in their respective territories so that all other dealers will know whether they are dealing with the right manufacturer."

Dealer Is on the Job Sooner

A dealer in a city of 7,000 located in the center of a lumber state writes: "We believe that there is only one method of selling clay materials for the manufacturer, that is thru the dealer and with the dealer. We find that most jobs are sold or contracted for before the manufacturer has any idea of the job coming up. We find it necessary to carry a stock on hand to start the job at least as deliveries the last few years have been very uncertain. The dealer who carries the stock is nine times out of ten the one who gets the order, but we have known of several cases where a manufacturer who was not represented here has sold direct. Where there are only two dealers in a town, we cannot represent all and carry a stock from each manufacturer, but we believe that in justice to all concerned the dealer should have the protection of all manufacturers. If the product, price and business methods of the manufacturer are right, he will always have an equal opportunity of selling his product thru the dealer in the same degree as he would if all manufacturers sold direct."

"As far as special knowledge of clay products is concerned, we do not believe it requires any more knowledge than that of most other materials we sell. That is up to the dealer who wants to make a success of selling any product."

The Part Played by the Dealer

The factor that the dealer plays in the marketing of clay products is well illustrated by an excerpt from the talk of an authority. He stated: "Take the case of a manufacturer of some product distributed thru dealers. The manufacturer in order to sell his goods must get the people to want them. So he advertises in newspapers or the general magazines. Consumers are attracted by his advertisements and go to their dealers to ask for the goods. By spring the dealer has none of the goods in stock. The advertising is wasted and quite often it serves to help the advertiser's competitors, for the dealer will offer for sale something 'just as good.' To the local merchant whose good-will you have not secured, and whom you haven't educated to the quality and uses of your

product, you undo all the influence you have built at considerable cost in the community."

Manufacturers—*What Are Your Views on the Dealer Distribution Question?* Brick and Clay Record Welcomes Free Discussion on this Subject and Invites Your Frank Opinions.

ILLINOIS CLAY MEN MEET MAY 8

The annual meeting of the Illinois Clay Manufacturers' Association will be held on May 8, which falls on the second Tuesday of the month. This convention will convene at the Hotel LaSalle, Chicago. It is also announced that the Indiana-Illinois Division of the American Face Brick Association and the Chicago Section of the American Ceramic Society will hold their meeting in conjunction with the Illinois Clay Manufacturers' Association. Announcement of the program has not been made as yet.

* * *

C. N. C. P. A. CONFERS WITH BUILDERS

The following committee has been appointed by the Canadian National Clay Products' Association to consult the Association of Building and Construction Industries with regard to their proposed apprenticeship plan: F. B. McFarren, chairman, J. W. Nicholson, A. U. Cote, and M. F. Gibson.

The executive board of the C. N. C. P. A. passed a resolution congratulating A. F. Greaves-Walker, one of their members, on being elected president of the American Ceramic Society.

* * *

N. P. B. M. A. GOVERNORS MEET MARCH 22

Plans for extensive activity during the coming season probably will be taken up by the board of governors of the National Paving Brick Manufacturers' Association, at its meeting in Cleveland, Ohio, on March 22. Election of officers will be some of the business transacted. The program may be outlined following the announcement of the new administration.

* * *

THE KEY TO BETTER MARKETING

(Continued from page 495)

able more steady operation of clay plants, lower production costs and a transfer of responsibility of stocking to the dealer.

Help Dealer Sell Your Wares

However, to accomplish all this, it will take more than simply offering to sell clay ware thru the dealer. You will have to protect him, establish a service bureau to help him sell clay products, win him over to permanent construction materials, and aid him to give service to his trade thru plan and supplementary service, and so forth.

The tendency on the part of clay products manufacturers to distribute their ware thru the dealer is now increasing. Those who do not see the light, may some day find themselves facing the problem of securing good dealers when most of them have already signed up with manufacturers who got in on the ground floor.

FARM PRODUCT PRICES RISING

Prices to farmers for crops and live stock increased in January, according to the Department of Commerce Survey of Current Business. The wholesale price index for international comparison increased from 164 to 166, and Dun's index number rose from 153 to 154. The cost of living, as compiled by the National Industrial Conference Board, declined from 159 to 158, the only group changes being an increase in clothing and a decline in food.

* * *

SOUTHERN BUILDING TOTALS HALF BILLION FOR 1922

Over \$500,000,000 was spent in building development in the chief urban centers of the South in 1922, according to figures compiled by G. L. Miller, president of G. L. Miller & Co., Atlanta, Ga. These figures cover 16 states from Maryland to Texas. To this \$500,000,000 must be added the construction done in thousands of smaller towns and industrial villages which in all probability, would bring the total Southern construction for 1922 to \$1,000,000,000.

There is every indication that the tremendous volume achieved in 1922 will be equalled or surpassed in 1923. Out

of 57 cities reporting definitely on building prospects for the first six months of 1923, only seven indicated that there would be any abatement of the large building volume of the past year, and in each of these cities the indicated loss was slight. The following table gives an indication of building done in the various cities of the South in 1921 and 1922. These totals are based upon returns from the principal cities:

State	Number Cities	Building Permits 1922	Entire Year 1921
Alabama	4	\$ 11,181,854	\$ 9,350,176
Arkansas	3	6,044,660	5,323,017
Dis. of Col.	1	54,001,324	24,322,134
Florida	11	27,783,883	27,455,234
Georgia	9	28,552,911	17,910,122
Kentucky	5	21,677,871	10,131,915
Louisiana	5	19,590,045	14,578,749
Maryland	3	44,548,631	38,804,030
Mississippi	3	2,250,886	1,051,184
Missouri	5	52,339,212	34,358,334
N. Carolina	11	24,070,100	15,195,671
Oklahoma	5	25,572,285	18,287,328
S. Carolina	4	5,793,121	5,187,327
Tennessee	5	24,699,185	20,230,529
Texas	12	65,827,184	52,437,078
Virginia	5	24,940,722	17,886,269
W. Virginia	5	12,155,136	9,088,879
Total	91	\$441,439,045	\$307,219,207



Determining the Value of the Clay Land

IT WILL BE interesting to owners of clay deposits to learn that the value of a number of clay deposits in one southwestern state as at March 1, 1913, has been discussed with the Valuation Section and the Committee on Appeals and Review of the Internal Revenue Department at Washington. At the present time the Commissioner of Internal Revenue has upheld the valuations made by the Natural Resources Division of these Texas clay deposits. As a general rule the valuations are less than one cent a ton at March 1, 1913. An appeal has been filed with the Commissioner of Internal Revenue under T. D. 3240 to have the cases reopened for reconsideration. If this appeal is granted the reconsideration may take place in a very short time from now.

If the Department's present attitude as applied to the deposits in question is to be applied in a similar manner to the other deposits of the United States, the owners of clay deposits will undoubtedly be ultimately very much disappointed. Brick and Clay Record will gladly act as a clearing house for the owners of clay deposits who are interested in this question. For this purpose we would be glad to receive at once as much evidence as possible in order to assist in proving the values of clay deposits at March 1, 1913.

Parts of a communication from the attorneys in the case is here reprinted:

"The valuation Section of the Income Tax Unit has based its valuation upon the sales of land made to brick companies about 1913, which appears to have been round about \$200 an acre. We pointed out that this was an improper method of valuation; that in many cases a brick company did not let it be known that it was the purchaser of such land, but would act thru an intermediary or dummy, in which case the seller undoubtedly would not be aware of the valuation of his property or of the presence of a valuable clay deposit.

"If your readers will supply us with affidavits as to their method of purchase of farm lands in support of this contention if the facts are in accord with our contentions,

we shall be glad to submit these affidavits along with other evidence which will be submitted within the next month.

"If any of your readers can supply us with evidence of actual sales of clay deposits which have been actually worked and known to have been of value and to have produced reasonable profits, either as a brick making property or as a fire clay proposition, we shall be glad to have the evidence of the values at which the clay deposits were purchased.

"If any of your readers have knowledge of purchases of clay deposits thru reorganizations of corporations or transfers of property by individuals or partnerships to corporations upon which a reasonably fair market value was set at the date of the transfer, we shall be glad to have an affidavit setting forth any such evidence.

"If you know of any associations of brick and clay manufacturers who would be interested we would be glad to know the names thereof and the names of their officers and to have you communicate with them the substance of our communication to you. However, any such action should be your own action for the benefit of the industry and is not to be construed as being an effort on our part for advertising or soliciting. What we are interested in is to get the clay deposits of the southwestern section properly valued and it is to accomplish that purpose that we have communicated with you."

For the good of the industry Brick and Clay Record urges any one who has had experience along this line to tell their method of revaluing their clay land. Wherever desired, the source of information will be kept confidential.

If evidence can be produced to show that in several cases clay land was transferred in the last few years at say a value of \$500 per acre, the claim can rightly be made that land containing similar clay was worth in the neighborhood of \$500 per acre on March 1, 1913. If this fact can be proven to the satisfaction of the Income Tax Department, there is an opportunity for those who own clay land on March 1, 1913, to make claim for rebate on the basis of the increased valuation.

Should Men Work 12 Hours?

Facts Brought Out in an Investigation of the 12 Hour Shift in Industry —Clay Industry Thoroly Studied

IN A SURVEY and investigation of the 12-hour shift in industry made by the Committee on Work-Periods in Continuous-Industry of the Federated American Engineering Societies, it was determined that opinion in industry is practically unanimous that the three-shift system is more desirable than the two-shift provided the economic loss in making a change is not too great.

In summarizing the reports on the different continuous-industries, of which the clay industry is one, the committee says in part: "The desirability of abandoning the two-shift system lies not in the extent to which it is used but in the fact that the 12-hour shift day is too long when measured by the 20th century ideas as to the proper conduct of industry. Decisions are influenced today by humanitarian considerations as well as by the economic demand for that length of a day which will in the long run give maximum production.

No Economic Loss Need Be Suffered

"The weight of evidence indicates that the change can usually be made at a small financial sacrifice on the part of the workers and of the management. Under proper conditions no economic loss need be suffered. In certain instances, indeed, both workers and stockholders have profited by the change.

"Facts developed by the investigations definitely prove that there is no broadly applicable way of striking a balance between the losses and gains inherent in the change from the two-shift system of operation. If any one fact stands out above the others it is that the change cannot advantageously be made by fiat. Our judgment is that to effect the change suddenly or without adequate preparation is sure to cause lowered production. On the other hand it is our judgment that when the change is pre-planned and the cooperation of every one is enlisted gains will accrue to every one concerned—to workers, management, owners and the public."

Investigate 40 Industries

These conclusions were reached after a mature study of reports submitted to the committee and covering some 40 continuous industries. The committee, which was composed of well-known engineers and men prominent in engineering fields, devoted two years of study to the problem of the 12-hour shift. During that time a great many plants were investigated and conditions in each of the continuous industries were studied. The committee was composed of the following men, many of whom are familiar with the problems confronting the clay products industry:

Chairman, H. E. Howe, Chemical Engineer; L. P. Alford, Editor Management Engineering; J. Parke Channing, Mining Engineer; Morris L. Cooke, Consulting Engineer; Dwight T. Farnham, Consulting Engineer; Fred J. Miller, Consulting Industrial Engineer; L. W. Wallace, Industrial Engineer; R. B. Wolf, Mechanical Engineer.

Clay Industry Has 11,000 on Shift Work

In the continuous industries in this country, of which there are about 40, which are operating more or less completely on a shift system there are employed between 500,000 and 1,000,000 wage-earners on shift work. Of these there are some 300,000 that are working on 12-hour shifts. The brick and tile industry employs approximately 100,000 men,

of whom about 11,000 are on shift work. The survey in the brick industry indicated that these 11,000 men are for the most part on two shifts. In some Philadelphia plants men are on duty 36 hours at a stretch. In Illinois many plants have changed to the three-shift system.

Technical difficulties do not seriously hamper the changing over from a two- to a three-shift basis. The committee says: "The seeming disadvantage of having three men instead of two responsible for a given product, process or equipment is overcome by standardizing procedure and establishing control thru precision instruments."

Man-Capacity Increased One-Fourth

"The effect of the eight-hour as compared with the 12-hour shift operation on the quantity and quality of production has been satisfactory where good management and co-

If you decide to place your plant on a three-shift basis you must consider these eight factors:

The readiness or unreadiness of the men to do more work per hour under the shorter shift.

The responsibility of management as expressed in planning, supervision, and control, which should be of a higher quality than usually prevails under two-shift operation.

The fluctuation in individual earnings and labor costs.

General industrial and economic conditions, as determining the time of making the change.

The relationship of work periods for shift-workers and for day-workers.

The relationship of wage rates for shift-workers and for day-workers.

The number of working days in a week.

The rotation of shifts.

operation of labor have been secured. In practically every major continuous industry there are plants which have increased the quantity of production per man as much as 25 per cent.

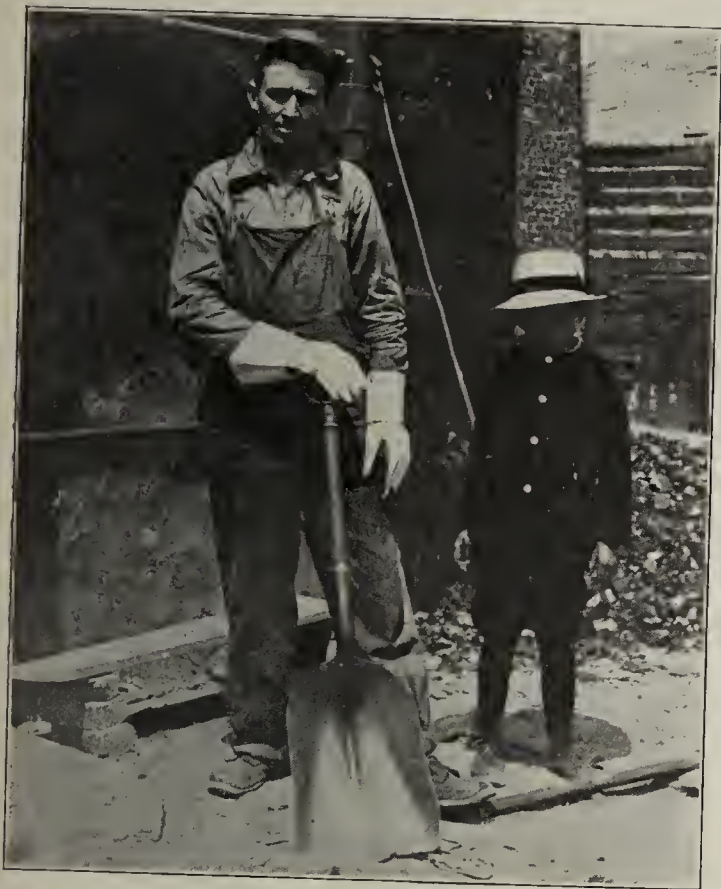
"The change from two to three shifts has in practically every case reduced absenteeism and labor turn-over, and in a marked degree."

This latter advantage of the three-shift system is worthy of serious consideration in the brick and tile industry. In the hot summer time when labor is required to work long hours, especially at such disagreeable work as firing kilns, it

is difficult to keep men. This at least, was the experience of the Purington Paving Brick Co., Galesburg, Ill., whose president says:

Purington Finds 3 Shifts Satisfactory

"After running our plant about one year on an eight-hour basis, we had a great deal of dissatisfaction from the burners who were complaining that they had to work 12 hours, while the rest of the plant worked eight hours. We found the eight-hour day in effect all over the country, and we decided



Twelve Hours' Work Gives this Man Less Time to Devote to His Boy than He Should Have.

to make the change ourselves before it was forced on us by our burners. We have worked it long enough to decide that it is much better to work them eight hours. While the cost is higher, still we get enough better burns to pay for the extra cost. During the hot summer months it is quite difficult to keep burners, and at the present time it would be almost impossible to get the burners to work 11 or 12 hours."

When changing from a three-shift to a two-shift basis, the question of wages is always an obstacle which must be overcome. The survey of the Committee brought out that the most common practice has been to increase wage rates about 20 or 25 per cent. Economic conditions and the peculiar circumstances of each plant would have a bearing on the wage adjustment. It is recommended as a good plan that the wages be left the same per hour for eight hours as for 12 hours, but that the worker be put on bonus, thus giving him an opportunity to make up, at least in part, the loss in earnings due to the shortening of the day.

Committee's Report on Clay Industry

The committee made a very thorough study of conditions in the brick and tile industry and practices on many of the larger plants in the country were observed. This survey of the clay industry is exceedingly interesting and the main facts are presented herewith.

"In typical brickmaking plants it has been found that the continuous operations require about 11 per cent. of the total employees. Much depends on the type of brick and the plant. In some plants the proportion of shift-workers

is less than 11 per cent. This is true especially of plants using gas instead of coal as fuel. Considering that there may be only 50 to 80 employees in a fairly good sized brick plant, the few men employed on shift-work may seem to be almost negligible. When it is considered, however, that there are in the United States more than 100,000* men employed in the brick industries, it is seen that these groups of five or ten men added together would, on the 11 per cent. basis, amount to 11,000 persons.

12-Hour Schedule Usual

"In actual practice little brick burning is on less than a 12-hour shift schedule. In the Hudson River district common brick plants, burners and their assistants work 18 hours out of each 24, the assistant taking charge during the six hours while the burner is away.

"In the common brick plants of Philadelphia the former arrangement was for burners and assistants to work 36 hours at a stretch, then take 12 hours off, and come on again for another 36 hours. Later this system was changed to the present practice under which the burner works 24 hours on and 24 hours off, while the assistants still work 36 hours on and 12 hours off.

"The total force of burners at a Philadelphia plant (which burns one kiln at a time) consists of two burners and three helpers. Under the 24-hour system for burners, and the 36-hour system for helpers, one burner and two helpers are on duty at all times. The engineers at this plant were also on 12-hour shifts. Of the other employees in the plant, those on the brick machines worked about eight hours per day, kiln builders worked piece-work, and common labor day-work for ten hours.

West Virginia Plant Tries 3 Shifts

"Outside of New York and Philadelphia, the 12-hour shift is the general rule. The kiln fireman follows a 12-hour schedule for the greater part of a week until the kiln is done. Then he may immediately fire another kiln or have a waiting period, during which he works on a day-work basis for ten hours.

"A brick plant in West Virginia in 1914 placed its head burners on a three-shift basis, but after a while the management believed that the division of responsibility among three instead of two men was unsatisfactory, so it put the head burners back on two shifts and tried their helpers on three shifts. This method worked satisfactorily and the plan was followed for several years.

Foreign Labor Wants Long Hours

"Owing to a labor shortage the company put its helpers back on 12-hour shifts in 1917. The helpers, who were foreign and of the older un-American type, welcomed the return to the longer hours with their greater pay. As long as they employ this type of labor, the management believes that two shifts will be more satisfactory to the men and mean smoother running for the plant.

"Detailed information has been secured concerning a Seattle, Wash., brick company which a number of years ago put at least one, and possibly other, of its six plants on three shifts. The work periods were nine rather than eight hours long, so as to provide double gangs three times a day when the fires were cleaned. This doubling up at the time of the hardest work made it possible to cut down the number of men on a shift so that only a slight increase in personnel was required. Thus 12 kiln firemen working on three overlapping shifts of nine hours each (four on a shift) were able to do the same firing that 12 men working on two shifts of 12 hours each (six on a shift) had done. The only increase in

*Census of 1914. In the year 1919 the number of wage earners reported was only 77,000.

personnel was in the case of the burners, it being necessary to have three burners where before there were two.

3-Shift in Illinois—A Face Brick Plant

"It is chiefly in Illinois, however, that the three-shift system in burning brick has been given wide application. About 1915 the W. Company agreed to go on three-shift operation. Simultaneously a piece-rate system was introduced by which the men were paid so much per 'kiln day.'

"Prior to changing from two to three shifts, the maximum work assigned to one man was one hot kiln, plus one kiln requiring firing once in 60 minutes. At the present time, on eight-hour shifts, the minimum for a man is two and one-half kilns, all kilns taking the same classification. The actual quotas run from two and one-half to five kilns.

"Under the present arrangement, the men fire once every half hour. It takes about five minutes for each kiln (firing half of the ten fire boxes), or 15 minutes to fire a quota of three kilns. This gives a man about 15 minutes every half hour to rest.

Wage Cost Did Not Increase

"The men, who prior to 1915 on the two-shift system earned about \$2 a day, were in October, 1921, earning five, six, or even eight dollars a day. According to the management there is no question but that the men prefer the three-shift system. From the above figures it appears that the wage cost per hot kiln to the company was in 1921 no higher than it had been under the old system prior to the war.

"The management find that the men pay better attention to their work and but little difficulty is experienced in securing the desired quality of product. More inspection is required, however. The foremen, who are also on three shifts, are more alert, and instruments provide means of quality control.

Potteries on Long Shift Basis

"In the pottery and allied industries two-shift operation has been the rule. This is the practice followed by the potteries at East Liverpool, Ohio, the leading pottery center in the United States. From the viewpoint of the pottery industry the matter seems of little importance. In the summer the potteries use gas very largely, and almost no one is on duty at night, except one man, who is a sort of watchman and who controls the gas. Likewise few men are required when oil is the fuel. In the case of kilns using coal, a practice which is much extended during the winter, the number of kiln firemen is larger.

"The pottery industry is one of the most thoroughly organized in the country and all wage-rates and working conditions are established by collective bargaining, the agreements including the burners. Some managements in the pottery industry, however, are considering the question of two and three shift operation.

Northwestern Terra Cotta on 3 Shifts

Most terra cotta companies are on two shifts for the burning operation. But the Northwestern Terra Cotta Co. of Chicago is on three shifts. This applies to the kiln firemen, boiler firemen, and engineers who together number about 10 or 12 out of a total of 372 or about three per cent. The change to three shifts was made about three years ago. According to the superintendent, the company gets higher efficiency. The management has found that proper supervision can overcome any difficulty."

The change from a two-shift to a three-shift basis cannot be made overnight but requires serious thought and consideration and a study of the conditions on the plant. The economic conditions also have an important bearing on the advisability of making a change.



Condition of Clay Products Industry in the South

BRICK PLANTS in the southern territory are operating at full capacity, a majority of them sold ahead 30 to 60 days, finding it increasingly difficult to keep up with orders, and enjoying as a whole the most prosperous period of activity in several years, in the opinion of the leading manufacturers and dealers in Atlanta. The outlook for the future gives promise that 1923 is destined to prove one of the best years the industry in the South has ever enjoyed. This information was brought out in an investigation made by Brick and Clay Record's southern representative.

Recently practically all of the plants have granted slight increases to labor, and this has naturally resulted in a proportionate increase in prices all along the line, but the price advances have not been rapid and as a whole can be said to be comparatively stable. A prominent dealer there, who does not care to be quoted, stated that too rapid an increase in brick and other building material prices undoubtedly would bring on another buyers' strike such as was experienced in 1920, and the industry as a whole seems to share that opinion.

Freight Situation Again Normal

Building is active over the entire district and bids fair to remain so thru the year, with 1923 establishing new construction records in most of the principal southern industrial centers, such as Atlanta, Birmingham, Memphis, New Orleans, etc.

The freight situation is O. K. again after a few weeks of difficulty in securing cars, and tho there are still some isolated instances of freight trouble, most of the plants in

the district are now able to secure such cars as they need.

A majority of the building material dealers and wholesalers in the section have been purchasing very heavily the last few weeks, and as a whole appear to be carrying much larger stocks in preparation for the spring and summer demand that is anticipated than they have carried in some years.

Many New Companies Being Formed

One evidence of improvement is the fact that during the past two months more new brick companies have been formed in that section than in some years over the same period of time, and that existing companies are carrying out extensive improvements, many of them enlarging capacity to take care of the unusually large volume of business that is being experienced.

It is interesting to note that in the Federal Reserve Bank of Atlanta's report for the brick industry in January—definite figures for February are not as yet available—orders booked during that month were 22.3 per cent. greater than during December, and 58.1 per cent. greater than during January, 1922. Unfilled orders on hand at the end of January were 507.5 per cent. greater than the January of last year, while employment at the plants during the month was 191.5 per cent. greater. Figures for February will not be available before the end of March, but brick manufacturers here state they will show a still further improvement. The figures are based on a compilation of reports from several of the larger brick plants over the Southeast.

Danger Lurks Ahead

The freight congestion predicted by Brick and Clay Record in December and January is already reaching serious and widespread proportions. Brick and tile plants in eastern Ohio and other districts will be forced to shut down within a few weeks unless there is a decided improvement in the prevailing car shortage.

Factories are now receiving only from five to fifteen per cent. of the number of cars required. One plant operator has more than 225 cars of face brick on his yard and orders on hand for the full amount. This operator needs and normally obtains 60 cars a week. He is now having a difficult time in getting ten cars.

To add to the present difficulties, the trade is insistent in its demands for shipments. Telegrams and long distance phone calls demand shipment of orders previously placed.

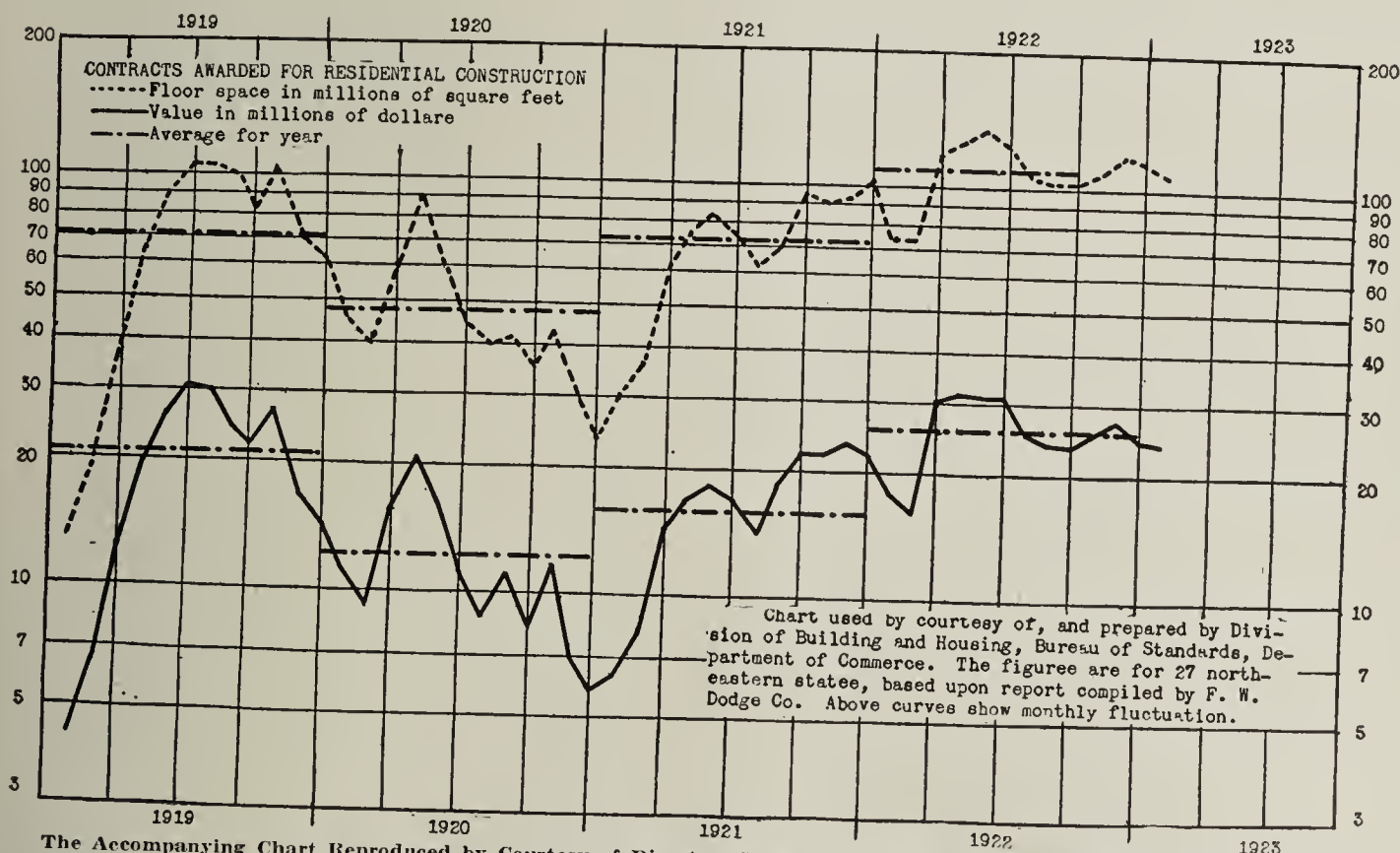
The demand for construction bids fair to keep right on growing for at least the next 90 days. But the freight congestion has already been reflected in increased prices which, if continued, will soon throttle construction and cause a big set-back, not only to the construction industry, but probably to all business as well.

These dangers should be pointed out to the Interstate Commerce Commission by the National Federation of Construction Industries. If the above mentioned body does not act immediately, steps should be taken by the clay products industry to do so.

SAND-LIME MEN HAVE GOOD MEETING

Manufacturers of sand-lime brick met in convention February 8 and 9, 1923, at Detroit, Mich. This was the nineteenth annual convention of the association. The morning session was given over to general business and reports of the officers. Several papers of interest were presented in the afternoon by I. G. Toepfer, Acme Brick Co., Milwaukee, who spoke on results obtained with new equipment at his plant; J. M. Zander, who read a paper on labor turnover, and W. H. Crume, Crume Brick Co., who outlined the common labor shortage.

At the Friday morning session, a paper on "Influence of Lime on Cement and Mortar," was read by Robert Marshall, of the Canadian Inspection and Testing Laboratories, Toronto. Other papers were: D. D. Wood, on "Sand-Lime Brick Situation in Canada"; J. S. Palmer, on "Freight and Transportation"; John Graham, on "Freight Rate Charges." A report of the Committee on Tests and Standards was made by W. H. Crume. A paper on "Cinder Brick," prepared by the Sheehan-North Co., El Paso, was read. Warren E. Emley, Bureau of Standards, spoke on "Just From South America."



The Accompanying Chart Reproduced by Courtesy of Director Gries, of the Bureau of Housing of the Department of Commerce, Shows Graphically What Happened in 1920 When Building Supply Prices Leaped Upward Without Restraint During the First Six Months of the Year. The Present Period of Prosperity Has Brought with It Steadily Increasing Prices. Building Materials Are Going Higher Every Month. Is the Building Industry Going to Cut Its Own Throat by Bringing the Cost of Building to a Point Where the Public Will Again Refuse to Buy?

Getting at the Nub of Selling Clay Ware

Prominent Automobile Manufacturer-Merchandiser
Says That There Is Nothing Magical About Selling—Simply Direct Your Appeal to the Senses

Edward S. Jordan

President, Jordan Motor Car Co., Cleveland, Ohio

Editor's Note.—In this article, which is part of his blackboard talk before the Common Brick Association at Cleveland, February 5, 1923, Mr. Jordan outlines the principles of selling and advertising. He takes what he has learned in his own business, manufacturing automobiles, an industry which does more advertising than probably any other, and applies it fundamentally to all business. Read this article; it will give you a new outlook on the science of selling and advertising.

I DON'T KNOW ANYTHING about your business in its details, but I do know this: that all lines of business are founded upon the same fundamentals and I find as I go about the country meeting people in smoking compartments and hotels and restaurants that most people are inclined to think superficially instead of fundamentally.

I am going to give you a quick picture of what my idea of business means. In order to have a business, you must have, first, your MEN, then MONEY, then good MERCHANDISE, MACHINERY and a MARKET.

Now, the most important factor in your business is the men. If those men are dominated by the spirit of service, that is, if they really want to build a good product and satisfy the people who use that product, that is the spirit that will take them rapidly toward success if they adhere to it.

Service Is All-Important

If those men have character, they won't have difficulty getting money to finance the business. That is secondary. If they have the first two and they build that merchandise with the idea of serving the man who uses it and if the machinery is purchased with the idea of making that merchandise serve better, the market will take care of itself because there are a lot of people not following those principles and anybody who adopts the idea of rendering a high degree of service will stand out beyond his competitors.

I said the first important thing is men. In our organization we try to keep before our men these fundamental things.

The men must have first the idea of serving, the spirit of service. They must have sufficient knowledge of the business in which they are engaged so they will be able to render that service in an intelligent way. They must be governed by the idea that no matter what the competitor may say, no matter what the man across the street may be doing, they must continue to have sufficient courage to carry on the business in definite, fixed, unchanging policy, and if they have learned one simple thing which was the first thing I read in my copy book in school, they have made the first important step toward success, and that is the smartest, foxiest, cleverest thing in the world is old-fashioned honesty.

If you have the courage to look a man in the face and tell him all about you, even to the extent of mentioning your

shortcomings, he will work for you and help you sell your merchandise.

Those are the fundamental things behind business. It happens we are in the business of transportation, which I consider the greatest business in the world—the business of carrying merchandise from where it is created to where it is sold and people from where they live to where they want to go.

Transportation is by no means a prosaic subject. You wonder why so many people talk so much all the time about the automobile business. The reason for that is this: the history of transportation is the history of the pursuit of four things: love, money, adventure and religion. If there is any question in your mind about that, it is only necessary to recall the fact that transportation began with the invention of the wheel, then the Phoenician galley was established to carry on trade, then we progressed to the desert caravan, the pony train, the Twentieth Century Limited and finally to the airplane.

Automobile Brings People to Suburbs

The greatest step in the automobile business was when Mr. Ford put the price of his car at \$200. It meant that every working man who could afford the price of a down payment on a Ford, which is about five dollars, purchased one and moved from the congested cities out into the country, bought a little common brick, put up a little house, made a little garden and got some fresh air for his children. You know, the automobile industry is wrapped up with the business in which you are engaged. It wouldn't be possible for you men to be selling your product to people in the suburbs if the automobile were not here to take them there.

We know every man who can possibly make the first payment is going to have an automobile. It is going to bring about a revolution in the suburban areas, with a great amount of building in the suburban districts over the country.

People Are Not Fools

I am going to give you a very quick picture of a situation in business which may be instructive. I am trying to get into your mind the thought that whether you are trying to make brick or clothes or hats, if you want to survive in the business in which you are engaged, remember the people are not fools. You can fool one man or ten or fifty or a hundred, but the judgment of a thousand men is far better. The aggregate judgment of a thousand men is conclusive and they will make or break you as they judge the service rendered by your product and you can't fool them in the long run.

Who Will Survive in Automobile Business?

In order to determine who was going to survive in the automobile business, I took the figures of the National Automobile Chamber of Commerce. The National Automobile Chamber of Commerce includes about 90 manufacturers. 12 of those manufacturers produce 89 per cent. of the automo-

biles that are produced. The rest of the manufacturers divide the remaining number. In order to establish for my own satisfaction those companies that are likely to survive in the business, I made up a list of companies and placed opposite the names of those cars the list prices of those automobiles. Then I asked for the second hand valuation on the last three previous models and a very interesting thing happened. I found, after comparing those second hand valuations, that there are just 12 companies that stood so

In this article Mr. Jordan gives an excellent piece of advice when he says:

"I want to get into your mind the thought that whether you are trying to make brick or clothes or hats, if you want to survive in the business in which you are engaged, remember the people are not fools. You can fool one man or ten or fifty or a hundred, but the judgment of a thousand men is far better. The aggregate judgment of a thousand men is conclusive and they will make or break you as they judge the service rendered by your product and you can't fool them in the long run."

conspicuously above the rest that there was no comparison of their records at all. Those same companies were building the largest number of cars. That simply means service built into the automobile is the determining factor in the survival of the business.

Sales Overhead Is Very Low

There are three angles to every business. The first is the manufacturing end, and economy is the basic thing in business—low overhead and high effort.

To give you an idea about that, I never talk about my own business but I think you may permit me to say this: during the past year our own boys have averaged in volume a million and a half a month on a running inventory of seven hundred thousand; sold a million and a half on an average monthly sales expense of eighteen thousand dollars—a little over one per cent. I will tell you why that is. Low overhead—no fancy rugs and carpets and no high salaries.

The second thing is distributing economy and the third is service to the public.

Now, any man who sets out to do one thing consistently and does it day after day, and year after year, and sticks to that policy and doesn't diversify his working on an economical effort, is bound to succeed. Mr. Ford has always held to one kind of production and never tried to build 21 models in one plant as one of his aspiring competitors tried to do. I can't mention names here but any one who tries to build 21 models in one plant is not on an economical production basis.

Can't Beat by Underselling

Any man who sets out to beat another should not make the mistake of trying to undersell him.

Now, Dodge Brothers when they set out to compete with Ford were not foolish enough to build a cheaper Ford; they built a better one and got a better price for it. Buick has had a consistent policy and Cadillac has maintained the same policy, thereby maintaining a high rate of valuation because a second hand car is almost identical with a new one; they are not changing their sales policy every week. You have to have a definite, straightforward policy and keep on holding to it and you will be successful if you build a good product.

When a man buys a Ford, his daughter and son are in the grade school. Now, I am coming to your business very

rapidly. They live in a frame house. He is just beginning to make some progress in his job. He hasn't enough money to buy a home. When he advances to the Dodge stage, he has moved into the little duplex house. He hasn't quite advanced to the point where he can have a home of his own but he has bought the Dodge. That is the next social step. Finally they buy the Buick and he gets a little money to buy a home of his own. It may be brick or concrete.

Then an interesting thing happens. The daughter has finished high school and comes home from college. Remember that father when he arrives at the point where he passes the Buick stage and is ready to pay five or ten thousand dollars for a home, thinks in terms of economy. If there are men here who are interested in advertising, remember these are the four human family factors: father thinks of economy; mother thinks of her children's opportunity; daughter thinks of social prestige and a happy marriage; and son thinks of travel, pep, speed, get up and go. Then there is a pet in every family. That is a bank account. It may be for a victrola, a new home or an automobile. It may be anything. It is something in which that family has pride of ownership.

Write "Ad" Copy to These Specifications

You have to sell father on the fact that brick is economical. Write a paragraph on that. Mother thinks of her children's opportunity. They must live in a home that is attractive. Daughter thinks of social prestige and a happy marriage, and surely an interesting and attractive home has a lot to do with that. Son thinks of pep and speed.

These are fundamental things in advertising and selling. There isn't anything magical about it. I have seen scores of books on the science of selling, but I am satisfied when I know these things, which are all there is to it. You have to sell your product into that family on the basis of pride of ownership.

You Must Sell on the Human Senses

If I were writing an advertisement to sell your product or my product or to sell anything, I would remember that those four human traits can't react thru any way but the senses. Daughter says, "Mother, the color of our house is like every other one on the street. We must paint it a different color." She wants color and that is the sense of sight. She wants the house to be attractive in appearance. The next thing is the sense of comfort, or feeling. Remember you are selling daughters and sons who induce their fathers

"Most people," Mr. Jordan says, "are just going along. About five per cent. of the people think. About five per cent. in every association think. About ten per cent. are smart enough to imitate the five per cent. that think, and the other 85 per cent. believe what they read and hear."

and mothers to do something. Remember every normal man is dominated by some woman. You have to sell that woman on the five human senses. Next is hearing. She comes from college and she wants the house painted a different color. She wants a steam heating plant put in. She wants a victrola; she says she is tired of the old organ. She wants a cook in the kitchen. That is taste. She wants a new rug and some pictures, and that is smell, or atmosphere. If you sit down and write advertisements on those principles, you will start a lot of conversation.

You have to adhere to those simple fundamentals. You have to make that house and that brick look just as well as

you possibly can. That is the eye thing. A woman walks in and looks at it. If it is the red color of the sky or the green color of the trees or the blue color of the ocean, she is attracted to it, and if you have a second hand automobile and you paint it red, you will get a \$150 or \$200 additional for it.

That brick and that automobile must look attractive. The first thing she does is put her hand on the leather, and that is the feeling of the automobile. She sits down, and if her corset doesn't cut her, she is comfortable. That is comfort in the car. Then she sees her husband sit back of the wheel. She walks around to the front of the automobile and she sees the name on the front of the car. She asks what kind of service those cars have been rendering. She asks a number of people whether brick is a good thing to build with, and you have to get her sold that brick is a good thing to build with, or that Dodge has rendered a high degree of service; and that is advertising.

Don't Waste Time Knocking

But, the man gets out and he says to your salesman, "What have you in this chassis?" Then the thing the salesman wants to talk about is his own product—not talk why concrete isn't good but why brick is good. He wants to tell the prospect who is buying that automobile all about Dodge and keep talking Dodge, Dodge, Dodge or Packard, Packard, Packard or Cadillac, Cadillac, Cadillac all the time, and the name on the product indicates to the public mind what degree of service has been rendered.

I don't want to take too much of your time here but if I were selling your product and writing your advertising, I would base it on fundamental things and what is more fundamental than the building of a house and the consideration of that first element? That first element is the most interesting subject in the world and don't be afraid to put it in your advertising.

Play on the Human Side

Economy has to do with money. There is the great thrill and adventure in building a house, going out and planning a house made of brick. The spiritual engenders itself in a house that is solidly and substantially built and is really attractive enough to keep the children at home.

Why, it is discomfoting to me at least to see banks advertising with pictures of big pillars and running complicated annual statements in the papers when the easiest and most effective advertising would be a picture of Sally Smith with her doll and her little bankbook at her feet. The human side is the thing you have to treat if you are going to get attention. Once in a while we write an advertisement based on those things, written in an interesting way just as Irving Berlin writes his songs. What is it makes those songs easy to sing? They are easy off the tongue! They are made from the standpoint of the woman living in the house which is made of brick, not from the standpoint of making brick.

Complex Sales Methods Not Appealing

The trouble with most of us is we are too up-stage; we are not simple. We are trying to discover some new, complex way of appealing to people when everybody is alike and responds to the same thing. But, we are always trying to appeal to them in some academic way when the old-fashioned human things are the things that make the human appeal.

I am going to finish in a moment by making a suggestion to you which might be profitable to some of you who have not thought of it. If somebody asks me why I have been successful, in the first place it was because I told the engineer when he started the automobile it was his job to constantly improve the character of that automobile, day by day, week by week, to improve the quality of the engineering of the

automobile. If you improve something, it doesn't go down. You don't need to spend a lot of money on it, but just keep improving.

Tells Men They Must Constantly Improve

I told the purchasing agent that in his buying the thing to do was constantly improve the quality of his purchasing. His curve will naturally rise.

I told the production man the thing to do was to constantly improve his methods of production so his production would rise with these particular curves, and as your production rises, your overhead has a tendency to go down, and if you are fair to the public, your prices are gradually reduced. Your prices go down and as your quality of service goes up, your sales are sure to go up, and as your sales rise, your profits increase and the fundamental thing happens—there is more money coming into the accounting department than there is going out and you are successful.

Don't Try to Get There Too Fast

The trouble in this country is that most men want to get there too fast. They are just trying to make it too fast and they think nobody is going to find it out. Probably some people in your business have that idea.

The second thing, no matter what business you are in, it is a tremendous source of satisfaction for you to know as much about your business as you can. The only way I can find out is to travel. Most men in the automobile business spend their time in Detroit, or Cleveland. Now, if you want to find out all about the automobile industry, you can get the whole story from soup to nuts in the barber shop of the Detroit Athletic Club, if you want to run your business on that basis. There is only one way to find out and that is to go to the people who use your product and find out what they say. So, I spend practically every night of every month on a sleeper. I meet thousands of people and know pretty nearly every dealer in the industry and it is a great joy to me.

Detroit is full of conversation. Every business is full of empty conversation. Now, it is a very desirable thing for you men to get together and exchange ideas. I have attended conventions for the last 18 years and I make a guess there are about ten men in the room will get every single thing that goes on and go home with a lot of information, and a lot of other fellows are not getting anything but conversation. The leaders in the industry are collecting all the information they possibly can.

Put Your Heart Into Your Work

Why is it so difficult to get a convention of men together on time? It is because some men are not really interested in success. They talk about success. They talk about selling the merchandise and building up the business. Why is it Dr. Coue can come to a city and get thousands and thousands of people crazy to pay money to hear him? It is because those people have never learned one simple thing and that thing is as old as the world. If you want to be a success in business, in your family, if you want to do anything, if you really want to do it, you have to do the same thing that old Richard the Lion-hearted did when he was learning to ride across a ditch. He said, "I am going to throw my heart across and when I throw my heart across, my horse and I go with it."

Most people are just going along. About five per cent. of the people think. About five per cent. in every association think. About ten per cent. are smart enough to imitate the five per cent. that think, and the other eighty-five per cent. believe what they read and hear.

I think it is important and very important for every man in business to go out and find out all about his business, formulate a policy and go to it.

Gloninger Triumphs Over Obstacles

Altho Wiped Out by Fire, John H. Gloninger Was Not Discouraged — Built New Plant on Site Hemmed in by Permanent Barriers — Incorporated Many Unique Mechanical Features for Producing High Grade Ware

Veteran Pennsylvania Brick Manufacturer turned a fire loss into a gain. He rebuilt his factory incorporating many labor-saving ideas of his own in the face of difficulties due to a site restricted to a very small area by inter-urban track, Pennsylvania Railroad, hills and kilns. How he did this is told in the accompanying article. Since it was imperative that every



JOHN H. GLONINGER

square foot of ground be utilized to the utmost, Mr. Gloninger worked out a very compact arrangement. The average wheel from kilns to sorting building is about 100 ft. The dryer cars travel from dryer to kilns about 125 ft. Coal from bins to kilns is drawn only 125 ft. These figures obtain in face of the fact that the kiln holding capacity of the plant is 900,000 brick.

PICTURE IN YOUR MIND a massive tunneling machine boring into a huge mountain of excellent raw material for brick manufacture and delivering this material in rough, rock-like state to a modern factory constructed of brick, steel and glass,—a remarkable plant where large, powerful, electrically driven machines, without manual direction or attendance, crush, grind, screen, mix, temper, and shape the clay into forms that after being subjected to an enormous temperature make the finest

kinds of face brick. You have then conceived in a concise but abstract sense what Brick and Clay Record found at the new plant of Gloninger & Co., the home of Waterproof Brick, upon a recent visit to Vanport, Pa.

Accurately speaking, however, the raw material in the high hills abutting the above plant, cannot be mined by tunneling machines. It is too hard a siliceous fire clay, which must first be drilled by an electric drill and then

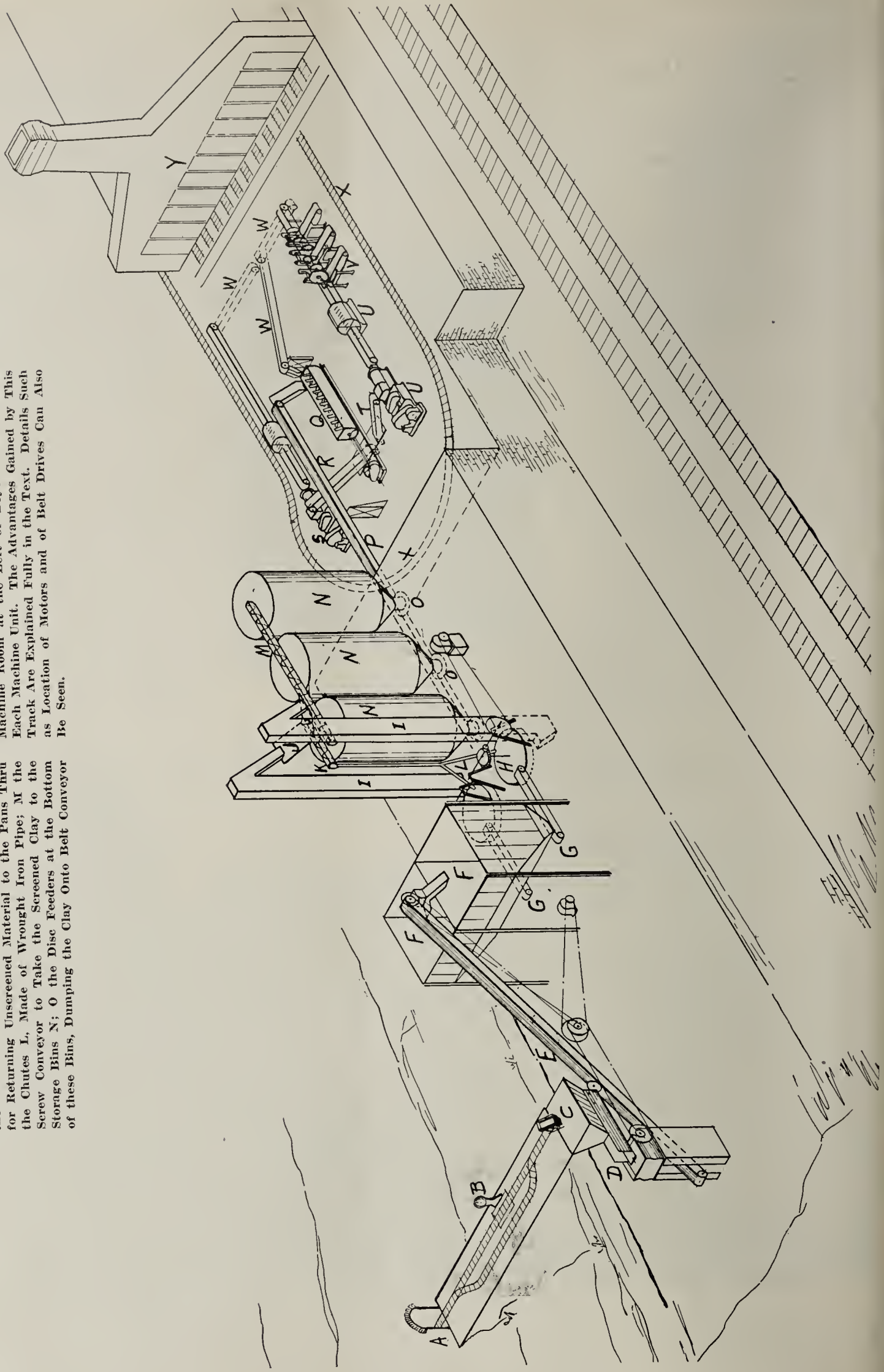
This mining is done some 2,000 The Restricted Area in Which It Was Necessary to Build this Plant Is Clearly Shown by the Inter-urban Track and Hill on the One Side, and the Pennsylvania Railroad at G and the River Beyond Shed H on the Other. At Sheds Marked A and B the Site Is Almost a Point, and Another Plant Adjoins the Square Kilns at the Left of the Photograph.

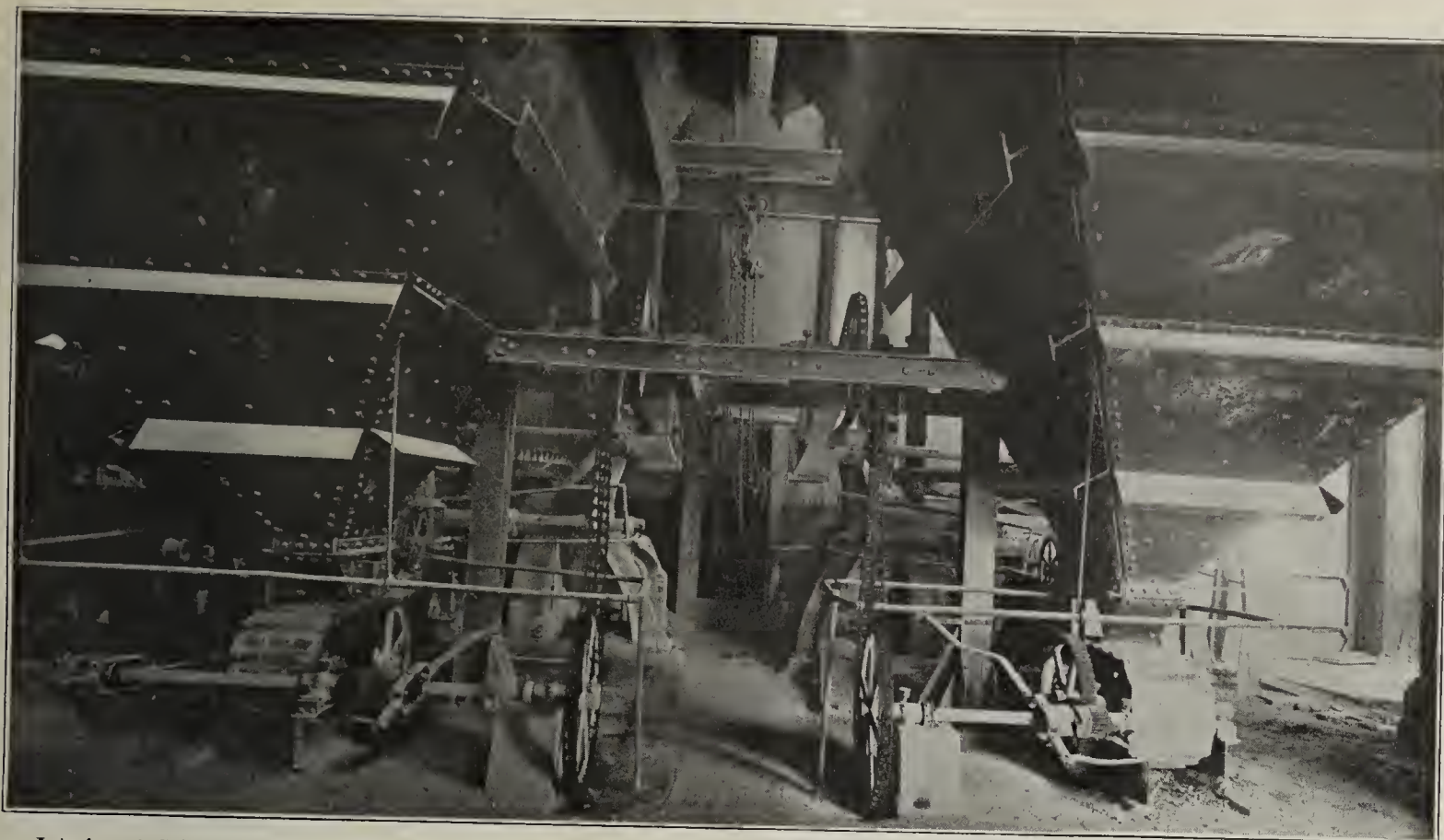


A Is the Shed Thru Which the Track From the Mine Brings the Clay to the Plant. B Is the Shed Covering the Long Conveyor From the Crusher to the Pans. C Is the House Covering the Screens, Elevators, Storage Bins and Dry Pans. D Is the Machine Room. E Is the Coal Storage Above the Dryer. F Is the Sorting and Shading Building, Where the Brick Are Loaded Onto Platforms and Taken Down a Shaft by a Lowerator. Note the Skylight. The Tunnel by Which the Brick Are Taken to Storage and Later Shipped, Extends From a Point Below F to the Storage Shed H. G Is the Railroad Right of Way, Beneath Which the Tunnel Extends.

P; Q the Pug Mill; R the Conveyor Which Takes the Pugged Clay to the Brick Machine Unit S; T the Conveyor Which Takes the Pugged Clay to Brick Machine Unit U; V the Represses; W the Three Conveyors for Returning Waste Material to the Pug Mill; I the Semi-Circular Dryer Car Track Which Enters the Machine Room at the Left of Dryer Y and Passes Each Machine Unit. The Advantages Gained by This Track Are Explained Fully in the Text. Details Such as Location of Motors and of Belt Drives Can Also Be Seen.

Bird's Eye View of Arrangement of Equipment Without Buildings. A Is the Mouth of the Mine; B the Track Scale; C the Hopper for Dumping Mined Clay; D the Feeder and Crusher; E the Long Conveyor to Storage Bins F; G the Feeders to the Fans H; I the Elevators; J the Screens; K the Screw Conveyor for Returning Unscreened Material to the Fans Thru the Chutes L, Made of Wrought Iron Pipe; M the Screw Conveyor to Take the Screened Clay to the Storage Bins N; O the Disc Feeders at the Bottom of these Bins, Dumping the Clay Onto Belt Conveyor





Interior of Grinding Room. The Two Large Bins, the Lower Parts of Which Show in the Foreground, Hold Crushed Clay. Beneath Each Bin the Apron Feeders Can Be Seen and Beyond These Feeders the Dry Pans. Note Especially the Drive of the Feeders from the Pan Shafts. Back of the Pans in the Center, the Lower Part of One of the Large Cylindrical Screened Clay Storage Bins Can Be Seen. Just in Front of the Cylindrical Bin Is the Chain Block of the Crane for Making Repairs to the Pans.

feet into the mountain. The clay, which is obtained in large, hard lumps, is carried in cars equipped with Hyatt roller bearings and drawn by a Minster gasoline locomotive. The mine train in its trip to the plant passes thru 600 feet of entry finished like a first-class railroad tunnel, with concrete sides and brick arch extending to the tipple building.

The tipple building is equipped with well arranged tracks, switches, scales, and means for dumping contents of cars into hopper of crusher feeder, the dump being brake controlled. No attendant is required at the crusher or crusher feeder, the starting and stopping of these being done by the motorman of the locomotive by pushing button for motor and lever connecting with clutch of feeder. The feeder is a Stevenson reciprocating plate—the crusher a Stevenson single roll, 18x36 in.

Crush and Convey Clay Automatically

Crushing of the large lumps of clay to a size approximately $1\frac{1}{2}$ in. is completed while the motorman is weighing, switching, and dumping the mine cars. This unit, including the crushed clay belt conveyor, is driven from a 40 horse power Westinghouse slip ring motor. The belt conveyor carries the crushed clay to two all steel bins with hopper bottoms—each bin having the capacity of 200 tons. This point completes one entire phase of manufacturing and can be regulated at any speed whether or not the remainder of the plant is operating.

The crushed clay is fed from beneath these steel hoppers by two Stephens-Adamson steel apron conveyors to two Stevenson ten-foot dry grinding pans. Each apron feeder is driven by a chain from the horizontal shaft of the pan. By this arrangement if the pan is shut down, the feed of the crushed clay stops automatically.

Use Vibrating Screens

Half gravity discharges are used under pans for chuting clay to elevator boots. Two steel encased bucket elevators carry the ground clay perpendicularly to two Mitchell electrically vibrated screens set *vis-a-vis*. From these screens the

fine clay either falls into the first of three giant circular sheet steel bins, or is carried by a 12-inch Caldwell spiral conveyor to one of its companions.

Two 75 horse power Westinghouse slip ring motors operate all of the equipment in this department. Each pan with its feeder, elevator, and screen is a separate unit. The tailings from screens are returned to one or both pans as desired thru a nine-inch spiral conveyor and down spouts, the latter being seven inch wrought iron pipe. The spiral conveyors can be driven from either pan drive. Each pan motor is equipped with two pulleys, one for driving the pan, which is by endless belt, and one for the elevator drive. This arrangement prevents stopping of elevator while pan is running and of starting of pan in advance of elevator, a safety measure to avoid choking of elevators.

Overhead Crane for Making Repairs

Over the grinding pans is a traveling crane, 40 foot span equipped with hand propelled trolley and chain blocks, used in the installation of pans and is available for making quick repairs.

Beneath each of the three circular bins with conical bottoms which contain the ground clay, there is a revolving disk feeder. One or all of these may be used at the same time to feed ground clay onto a 16 inch horizontal main conveyor belt. This permits a uniform flow of clay to the pug mill and if desired permits accurate mixing of this clay.

From the clay dump at the crusher up to the pug mill, no labor is required, with the exception of a watchman who also acts as oiler. It will be immediately recognized that this is a unique accomplishment.

One Pug Mill Serves Two Machines

The pug mill, a 14 foot International with Westinghouse 40 horse power squirrel cage motor, the drive at the discharge end, is located between two complete brick-making units. From intermediate shaft of pug mill, power is taken by chain to short countershaft to drive the 16 foot horizontal ground clay conveyor, it in turn driving the three disc feeders



The Unique Machine Room, Showing the Dryer and Lower Part of Dryer Stack in Background.

At the Left Is the Machine Unit for Making Wire Cut Brick. It Is Partly Hidden by the Conveyor, Which Carries the Screened Clay to the Pug Mill. The Pug Mill Is in the Center Foreground and the Conveyors to the Brick Machine Are Shown. At the Right Is the Machine Unit for Making Special Shapes and Repressed Brick.

The Horseshoe-Shaped Dryer Car Track Enters This Room Thru the Door to the Left of the Doors for the Dryer Tunnels. This Can Be Seen Near the End of the Screened Clay Conveyor.

located below the large circular storage bins. The return scrap conveyors are also driven from this countershaft. All scrap conveyors with one exception, the final conveyor to pug mill, are located below the floor of the machine room. The brick-making units consist of two type 425 International auger machines. The base of these machines as can be seen by the photograph, is a single piece casting extending from front of auger and including the outboard bearing and base for motor. Each machine is driven by a 75 horse power Westinghouse squirrel cage motor with Link-Belt chain drive and has a self-driven inclined belt conveyor supplying it with tempered clay from pug mill.

Practically No Vibration on Brick Machine

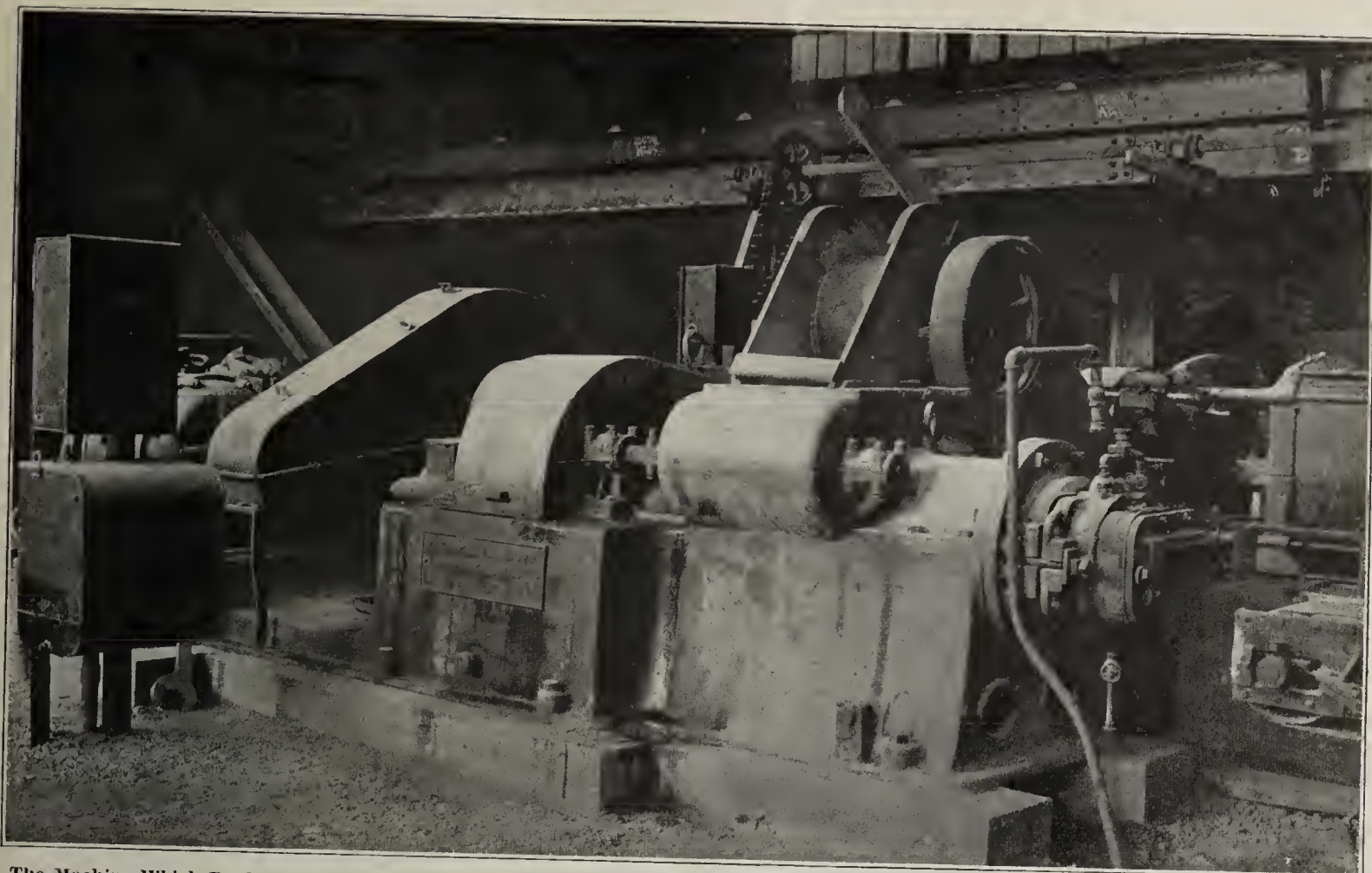
Here is a wonderful installation. There is so little vibration in the brick machine that a five-cent piece placed on edge, on barrel of machine, stood there without a tremor, altho the machine was pushing out a perfectly formed column of clay at the rate of 6,000 brick per hour. You will note the unusual arrangement of casting the motor base and the auger machine base all in one unit. This has permitted accurate alignment of all parts and facilitates assembling of machinery. In this particular instance the entire machine including the Westinghouse motor, Link-Belt silent chain drive, and a clutch located between the chain mechanism and the gear case, was assembled in the shop of the International Clay Machinery Co.

Of the two brick machine units, one is designed for making smooth and rough texture brick, standard size, and the other for making special shapes and repressed brick. Three Richardson represses form part of the special shape and re-



Cold End of Dryer Showing Cable in Center of Track for Pulling Cars, the Levers for Throwing Into Gear the Clutch for Any Track and the Cables Onto Which Are Fastened the Counterweights for the Dryer Doors. These Can Be Seen Near the Levers.

pressed brick unit. They are driven by a ten horse power Westinghouse back-geared motor set on machine room floor.



The Machine Which Produces 6,000 Brick Per Hour While a Coin Stands on End on Top of Barrel. The Rugged Construction, Including Gear Case, Sheet Iron Cover for Silent Chain Drive and Motor for Driving Is Made Possible Because of the One-Piece Casting Which Forms the Base. This One-Piece Base Extends From the Front of the Machine Near the Die to the Outboard Bearing Beyond the Motor.

From the brick machine the column of clay passes into the reel of a C-25 Freese cutting machine, cutting it into perfect brick 19 at a time. After passing thru the cutter, the brick are carried by offbearing belt to four hackers, who carefully and neatly stack them on dryer cars.

At this point begins one of the many original ideas Mr. Gloninger has developed in this plant—the semi-circular track which is a continuation of the dryer return track (See birds-eye view drawing). By means of this arrangement, the dryer cars do not pass over a transfer car, switch, or turntable from the point where empty cars are placed on the return track until the loaded cars are ready to be placed into the dryer. Moreover, this same track serves both brick-making units. The semi-circular track has a descending



The Tractor Loaded with Coal at the Coal Storage Bin Just Starting to Deliver This Coal to the Kilns.

grade of about two per cent. Only one man is required to take care of dryer cars. He also places loaded cars in dryer and attaches to last car a steel cable which is part of Mr.

Gloninger's system for pulling loaded cars from dryer. The empty cars travel by gravity from kiln transfer to machine room after being pulled up a short sharp incline by a chain haul interconnected with shaft of dryer car puller.

Special Dryer Cars

The dryer cars are standard International type but have a special feature in that one wheel on each side was let loose to take care of the differential in going around curves. The other wheel on each axle was pressed on the same as in all standard construction of dryer cars.

The machine room has no posts in it and, therefore, provides ample space and light. It is an unusually pleasant room in which to work. Attached to the roof truss is a horse shoe shaped monorail trolley upon which runs a chain block crane. By this equipment any machine can be reached with a minimum of labor and with utmost safety, speedy repairs made.

The dryer is a 12 tunnel International metallic radiated heat type. Each tunnel is 102 feet long with more than ample drying capacity for the 50,000 daily output for which this plant is designed thruout.

The dryer car puller is a marvel of efficiency. With it one man can open and close dryer doors and pull 15,000 brick in about 15 minutes or at the rate of 600,000 brick per day. The puller consists of a motor driven shaft located beneath the steel beams which support the cooling tracks. On the shaft are 12 winding drums and 12 jaw clutches, a pair for each tunnel. The cables which we mentioned that are hooked on the last car inserted at the cold end, wind on these drums when clutches are thrown into engagement.

Accident Chances Eliminated

The doors at the hot end of the tunnel are of vertical sliding type with counterweight slightly heavier than the doors. In operating the puller, a door is opened by pulling down on rope above where counterweight is hung in pit be-

↪ No Worries ↪ No Breakdowns ↪ Full Production ↪ Low Operating Cost



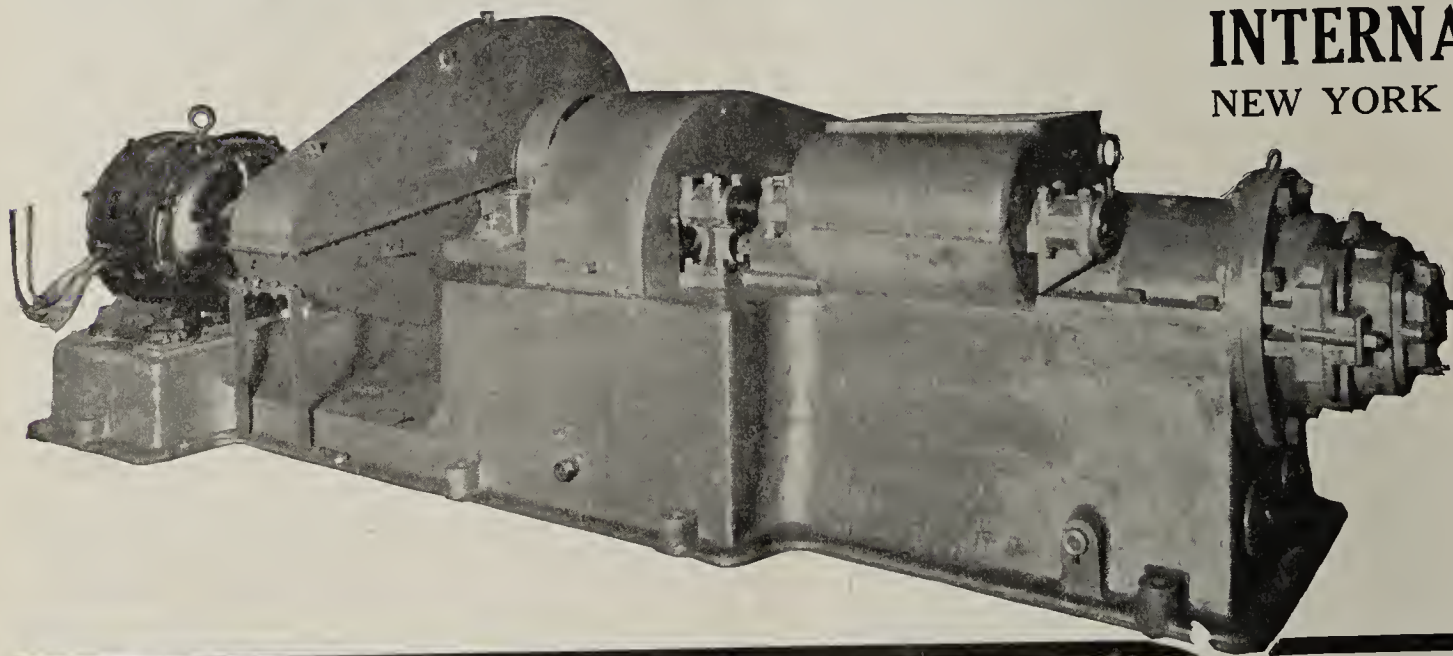
G LONINGER purchased 2 International 4' below. Notice the one-piece base with of this base. Vibration has been reduced with minimum wear.

These machines are completely assembled in all Gloninger had to do was to place them up International Service."

Gloninger wanted to cut his coal consumption tion Dryer equipped with motor driven car p

Gloninger furthermore installed an International either auger machine.

Gloninger also purchased all International sends these cars around a semi-circular track stay on the circular track at all times.



INTERNATIONAL
NEW YORK DAY

ENGINEERS
and
DESIGNERS
of
COMPLETE
CLAY WORKING
PLANTS

International

ere The Four Specifications Required by GLONINGER & CO.—

When rebuilding their wonderful plant at
Van Port, Pennsylvania

ines with motor drive as per photograph
ort and outboard bearing an integral part
ible quantity, hence a long life machine

with motor and silent chain equipment —
ation and attach the wiring—Such is “In-

hence installed a 12 Track Metallic Radia-

l silent chain driven 14 ft. Pug Mill to feed

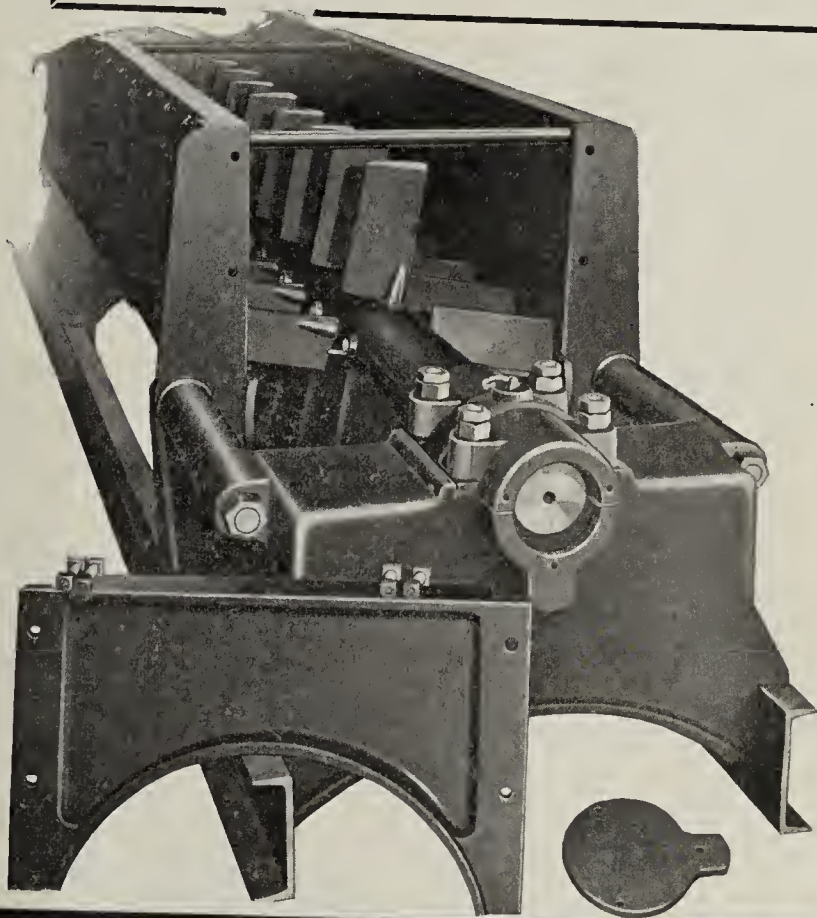
oil reservoir adjustable bearings, and he
wheel and bearing design, that these cars

CHINERY CO.
O PITTSBURGH



228-229-230

INTERNATIONAL EQUIPMENT met these specifications successfully. In fact, the STRICTER THE SPECIFICATIONS, the BETTER WE ARE PLEASED. We like to figure with and sell to discriminating and exacting buyers, because OUR EQUIPMENT IS FIRST PLANNED THEN BUILT, and our engineers LAY OUT A PLANT TO INSURE THESE FOUR SPECIFICATIONS.



EQUIPMENT *for* MANUFACTURING
CLAY PRODUCTS—POTTERY
and GENERAL WARE

neath cooling track. The weight when door is fully opened, reaches the bottom of the pit and there releases a safety device designed to prevent the engagement of clutch with drums before such release takes place, making it impossible to accidentally pull cars while the dryer door is closed.

When the clutch is thrown into engagement with drum, the train of cars in dryer is slowly moved until operator disengages clutch which he does when first car is half-way out of tunnel. The grade in dryer is so arranged that the train stops before second car travels forward sufficiently to prevent closing of dryer door. The first car rolls along cooling track until checked by operator. Power used is a $7\frac{1}{2}$ horse power Westinghouse back-geared motor. The chain pull for starting empty dryer cars on return track to machine is also driven by the same motor.

Indicator on Dryer

There is a unique installation on the dryer for indicating which tunnel may be pulled. At the receiving end of the dryer, there is one electric push button for each tunnel, controlling a light at discharge end. When operator is placing cars in receiving end, he pushes button controlling that tunnel, thus lighting the corresponding lamp at the discharge end. This is a signal to man at discharge end of tunnel, advising him that that tunnel must not be pulled while light is on.

All of the kilns are rectangular in order to make the very best use of the small area available. The kiln yard is entirely paved with brick.

Handle Coal Efficiently

An interesting feature of this plant is the coal handling system. On account of the restricted ground area the coal storage bin was located above the dryers and the empty dryer car return track, but this has proven a very efficient as well as compact arrangement. The system consists of a

Godfrey bucket hoist and trolley running on "I" beam. The bucket pit is almost beneath the cooling tracks of dryers. The bucket is filled from railroad hopper car by chute under railroad siding, is hoisted about 40 feet to trolley runway, travels along runway over steel coal bins, is lowered in bins and automatically dumps when it reaches bottom of bin, or coal previously dumped. The capacity of the coal bins is about 800 tons. Coal is distributed from bins to kilns by a three-wheeled Clark Truactor. Steel sand bins are also located over dryers, and sand is handled in much the same manner as coal.

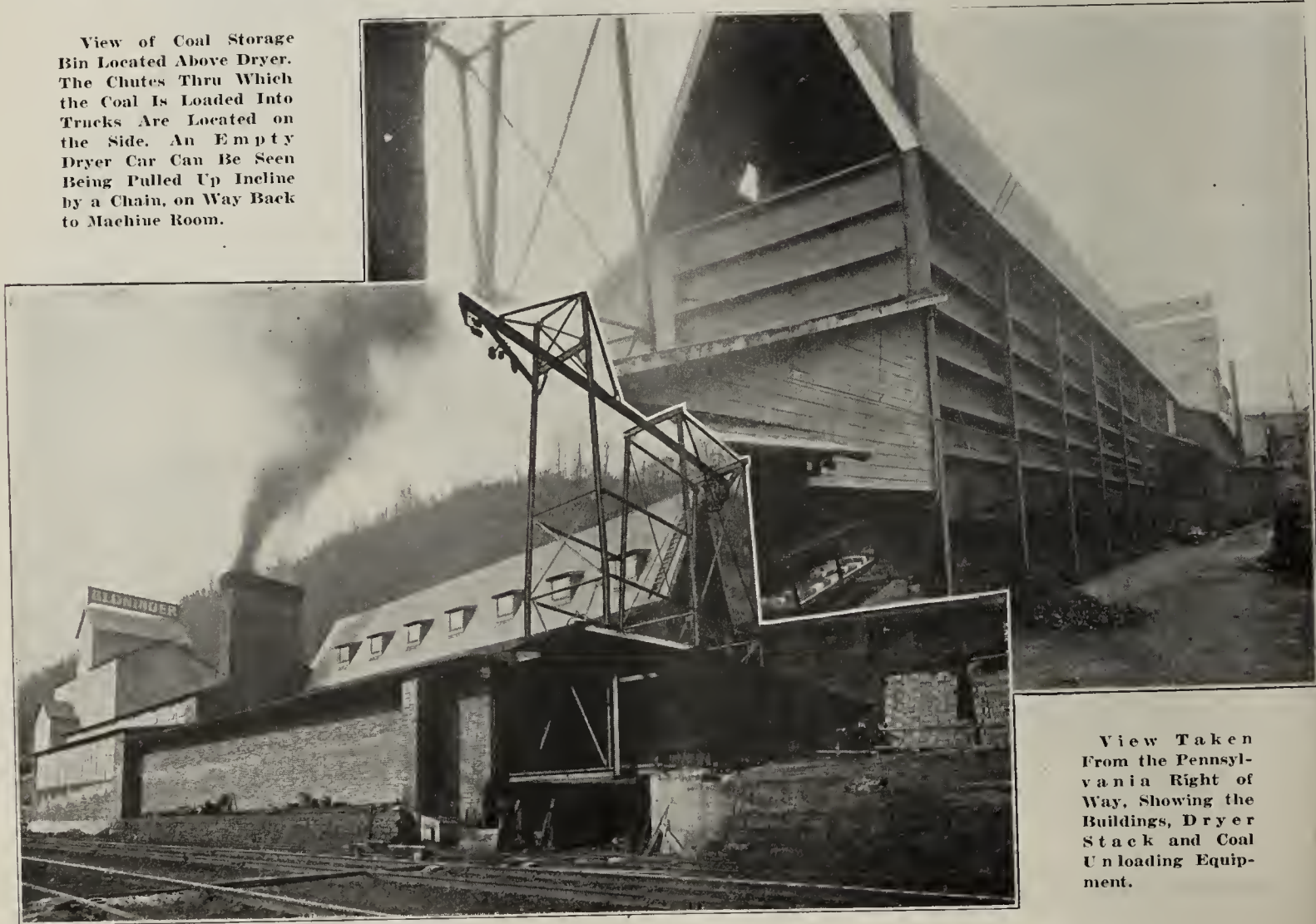
How Brick Are Sorted

The disposition of brick after they are burned is taken care of in a very unique manner. A sorting shed which is equipped with a three motor Shepard electric hoist and crane is located in the kiln yard. Here the brick are taken from the wheelbarrows coming from the kilns and piled on platforms, each platform holding about 400 brick of one shade. Loaded platforms are handled by the crane to an electrically driven car of three platforms tandem capacity. This car with its load is lowered on counterweighted lowerator to track which runs thru subway under kilns, Pennsylvania Railroad, and state highway, to storage warehouse. This warehouse is also equipped with Shepard electric cranes and hoists. The platforms are here removed from the electric car, and the car returned automatically to its place on the lowerator. Here it is ready to rise with the lowerator when sorter releases a brake control. The electric car travels in either direction automatically, excepting that in the warehouse it must be pushed to start it on its return trip.

Handling Brick in Storage Shed

In the storage shed the loaded brick car from lowerator rolls along-track from the mouth of the tunnel, and is stopped by craneman where desired. The loaded platforms are re-

View of Coal Storage Bin Located Above Dryer. The Chutes Thru Which the Coal Is Loaded Into Trucks Are Located on the Side. An Empty Dryer Car Can Be Seen Being Pulled Up Incline by a Chain, on Way Back to Machine Room.



View Taken From the Pennsylvania Right of Way, Showing the Buildings, Dryer Stack and Coal Unloading Equipment.



Interior of Storage Shed. In the Foreground the Small Car for Transferring One Platform of Brick at a Time to the Railroad Car Can Be Seen. The Brick Are Brought to This Storage Shed as Explained in the Text on a Similar Car Which Holds Three Platforms. These Platforms Have Four Lugs, One in Each Corner, and the Crane Shown Near the Top of the Shed Handles These Platforms to and from the Storage Sections. Near the Top Right Hand Corner the Numbers for These Storage Sections Can Be Seen.

moved from car by crane and placed in section of warehouse designated by chalk numbers on the brick, or if the brick are to be loaded for shipment, the platforms are placed on low hand propelled cars, having tops formed of rollers. These cars are then run on portable tracks into railroad car. In the railroad car roller skids are connected to the above cars by means of which the platforms of brick can be rolled to either end of the freight car. Loading shipments by this system is wonderfully speedy, as six men can be kept continually busy piling,—three in each end of car.

The warehouse proper without its lean-tos, is 450 feet long, 120 feet wide, and is equipped with three crane runways each 450 feet long. Brick can be piled 20 feet high. The maximum capacity, after allowing amply for aisles, is 20,000,000 waterproof face brick.

The factory and sorting buildings are fireproof, being of structural steel and brick construction. Plenty of glass was used to insure a maximum amount of natural lighting. All structural steel including bins, elevator and conveyor casings, was fabricated and erected by Pittsburgh Bridge & Iron Works.

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BUREAU OF MINES WORK ON REFRACTORIES

The Bureau of Mines laboratory car Holmes is now at the plant of the American Refractories Co. in Baltimore where initiatory work on the cooperative investigation between the Refractories Manufacturers Association and the bureau has begun. The objects of this investigation are to decrease fuel consumption in burning refractories, to shorten the time of burning, and to improve the quality of the product.

This cooperation is conducted thru a committee of the Refractories Manufacturers Association, of which S. M. Kier of Pittsburgh is chairman. The car serves as laboratory and living quarters for the crew conducting the investigation, which consists of seven technical men, a cook and mechanic's helper. The technical force consists of four ceramic engineers and three fuel engineers, all of whom have had experience on problems of this type. The ceramic men are E. P. Ogden, foreman in immediate charge of the work, Alfred

Whitford, A. E. Rupp and A. H. Fessler. The fuel engineers are W. E. Rice, car manager, R. F. Lunger and F. Wentzel.

After about a month's stay at the Baltimore plant the car will go to six other plants situated at Brooklyn, N. Y.; Womelsdorf and Salina, Pa.; Hayward Station and Taylor, Ky.; and Ottawa, Ill. This work is under the immediate supervision of G. A. Bole, superintendent of the Bureau of Mines Ceramic Station, Columbus, Ohio, and under the general supervision of the Division of Mineral Technology of the Bureau, of which Dr. R. B. Moore is chief and Dr. L. I. Shaw, assistant chief, collaborating with the Fuel Division, of which O. P. Hood is chief.

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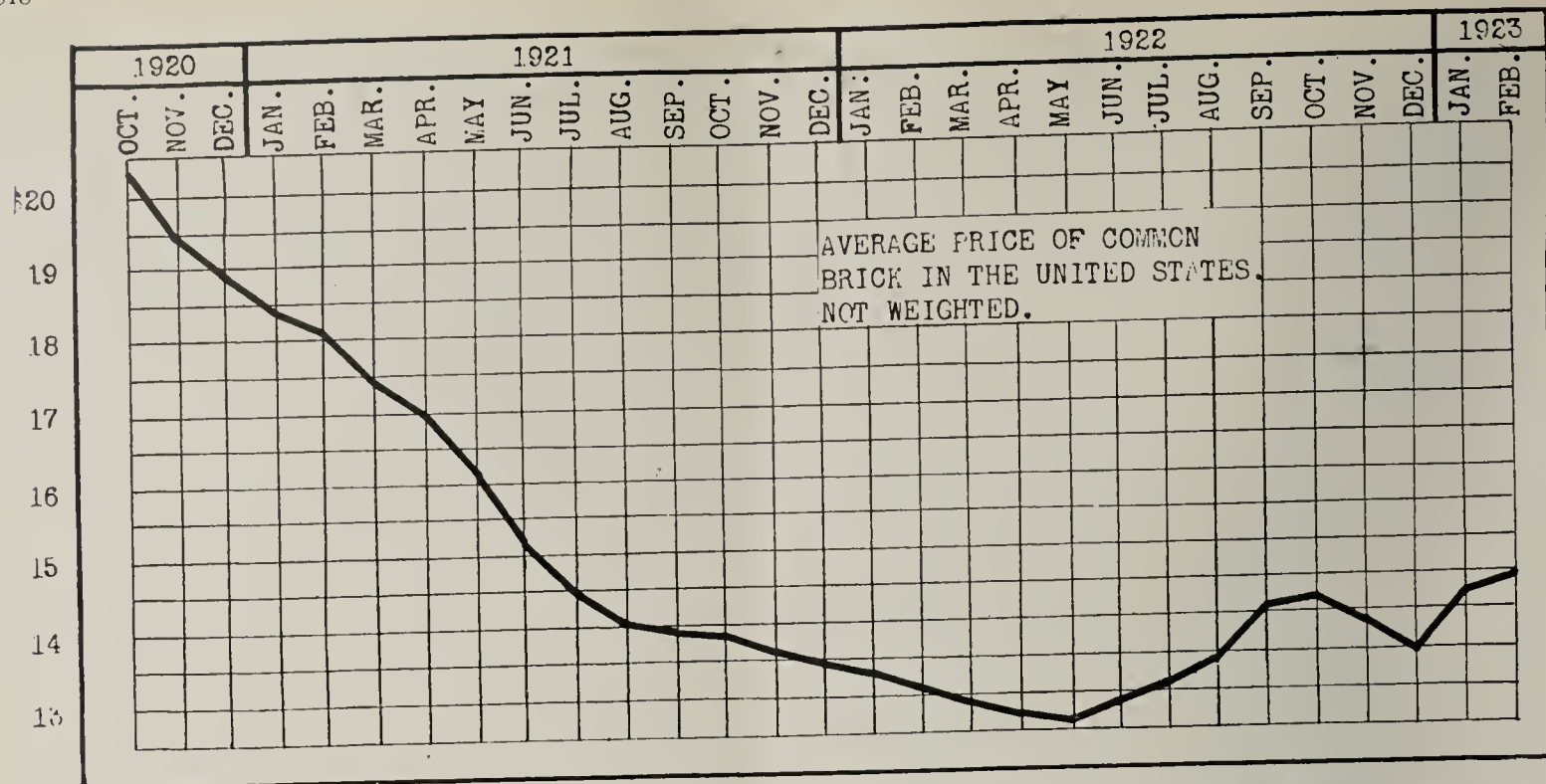
RESEARCH GRADUATE ASSISTANTSHIPS

Applications for appointment to the Research Graduate Assistantships will be received by the University of Illinois until April 1, 1923. Any one wishing to make application for one of these assistantships may apply for a blank, which will be furnished by the University. These Research Graduate Assistants devote one-half of their time to engineering research and the remainder to graduate study.

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NEBRASKA CLAY MEN MEET

On Wednesday, March 7, 1923, the Nebraska Brick & Tile Association held its annual convention at Lincoln, Nebr. The business session began at ten o'clock Wednesday morning and included reports of the president, secretary, treasurer and committees. The afternoon session was devoted to motion pictures showing the manufacture of brick and tile. In the evening, at the banquet, Ross C. Purdy, secretary of the American Ceramic Society, gave an excellent talk on "The Essentials in Meeting Competition." Mr. Purdy's talk contained some excellent ideas and was much appreciated by his audience. The Thursday session was devoted to handling many important business matters and election of officers. The meeting was considered highly successful and considerable enthusiasm was engendered for the coming year.



These Average Prices Were Taken from the Monthly Digest of the Common Brick Manufacturers' Association. The Figures Were Obtained by Averaging the Prices of Some 100 Firms Reporting Each Month, Making No Allowances for the Varying Production Capacity of the Plants. The Prices Are Therefore Not an Exactly Correct Average of the Common Brick Price but They Do Serve to Show the Tendency of Prices and Are a Fairly Good Indicator of the Trend.

NEW SYSTEM MAKES CEMENT BRICK CHEAPLY

A process of casting concrete brick in multiple molds, 400 at a time, and making possible the handling of cast brick in units of ten at a time, has been designed by the Zagelmeyer Cast Stone Block Machinery Co., of Bay City, Mich. This system, it is claimed, increases the capacity of one man to 4,000 brick per day. It is also claimed that concrete brick can be manufactured by the Zagelmeyer system at a cost less than that required to manufacture common clay brick. This is possible by the saving of time and labor effected. By means of this system, concrete brick are cast automatically in 400 molds of ten brick each. The molds are then trucked to the curing room and allowed to remain in a temperature of 100 deg. F. for eight to ten hours. The

concrete has then set sufficiently and the brick are removed from the molds so that they can be used again. The molds can, therefore, be used once each day. The only handling which the brick receive during the entire process of manufacture is when they are taken from the molds. It is claimed that because the brick are made from slush concrete, they are more dense and waterproof.

The equipment necessary for a plant of this character manufacturing 10,000 brick daily, is several tunnels for drying and curing and 25 cars of molds capable of casting 400 brick each day. These molds would cost about \$4,000. In addition to this it is necessary to have a truck for each of the 25 molds and the industrial trackage necessary to wheel the brick to and from the dryers.



Up to the Last Few Years, Chicago Common Brick Had Never Been Considered in Any Capacity in the Walls of Residences Than as Backing Up Material. That Homes Could Be Built with Common Brick Exteriors in the Chicago Territory Was Never Even Considered. It is Somewhat Surprising, therefore, to Hear, That on Chicago's North Side, One of the Most Desirable Residential Sections, Probably Two Hundred Homes Have Been Built with Common Brick Exterior.

Some of These Homes Are Examples of More or Less Eccentric Architecture, as That Shown in the Accompanying Picture. This Residence Was Designed by Ralph H. Oliver, Chicago Architect, and Its Walls Are Built of Clinker or Overburned Brick. The Design Is Rather Unusual and the Rough Appearance of the Wall Gives the House a Striking Appearance. The Brick Were Laid in Promiscuously and in Cases Where Three or Four Brick Had Fused Together, the Entire Block Was Laid in the Wall Intact.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

AMERICAN AND ENGLISH BALL CLAYS

BALL CLAYS are very plastic clays which are used in the manufacture of porcelain and other white-burning ceramic products to give the body the desired working properties during the forming of the ware, and to give it strength when dry. The principal deposits of such clays occur in Tennessee and Kentucky, and in England, according to H. H. Sortwell of the Bureau of Standards, Department of Commerce, at Washington.

Mr. Sortwell states that there are a large number of such clays in use, and manufacturers without an accurate knowledge of them often meet difficulties in changing from one clay to another, because of the differences between the clays and the effect of these differences on the properties of the body. The English clays are used in much larger quantities than the American clays, due largely to lack of complete information on the subject.

Test American and English Clays

The six American and 15 English clays which are used in the largest quantities in the manufacture of china, semi-porcelain, electrical porcelain, sanitary ware, and floor and wall tile have been given exhaustive tests at the Bureau of Standards, these tests covering their working behavior in the plastic state, their shrinkage when dry, strength when dry, behavior in firing, and their color in a standard body.

It was found that while most of the English clays are stronger and have a more desirable firing behavior, the American clays contain less mineral matter and carbonaceous material, and usually fire to a better color. While American clays cannot be substituted directly in equal parts for English clays without a slight change in composition being made, it has been shown that when properly used the domestic clays can replace the imported. From the results of this work a classification of ball clays has been made which is based on their properties.

The results of this work are published in Bureau of Standards Technologic Paper No. 227, which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for ten cents a copy.

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BIG INCREASE IN POTTERY CAPACITY PLANNED

Domestic pottery manufacturers are making rather extensive plans for enlargement of production this year, and initial construction calls for the erection of one three-tunnel kiln plant, equal to the output of 16 upright kilns, one nine kiln plant, and the erection of kilns by going concerns. In all, the increased generalware production will equal 38 new kilns, with two more to be added to the sanitary industry.

With the new seven kiln plant of the Crescent China Co., at Alliance, Ohio, which has just been placed in operation, brings the total new kilns for the current year up to 47—the greatest increase in kilns ever known in the history of the domestic pottery trade.

The Homer Laughlin China Co., has announced plans for the erection of a tunnel kiln plant at Newell, W. Va., construction to begin immediately. The Harrop type of tunnel kiln has been decided upon. This glost tunnel kiln will be 300 feet long and the bisque 320 feet. There will also be a tunnel decorating kiln in this new shop, which is to be one-story construction, and is to be 800 feet in length by 220 feet in width.

The W. S. George Pottery Co., is now awarding contracts for materials and equipment for a new nine-kiln pottery, which is to be built at East Palestine, Ohio. The Horton Pottery at Chillicothe, Ohio, is ready to award contracts for the erection of two additional 17½ foot kilns. This is a sanitary shop, and is being favored with a rather heavy volume of business, which necessitates additional output.

The Atlas China Co., at Niles, Ohio, will add two kilns to its production, which will give this firm the output of nine kilns,—five glost and four bisque. At Sebring, Ohio, the Saxon China Co., will add two additional kilns this spring, as will also the French China Co., at Sebring.

The new Laughlin plant, when completed next fall, will give that interest the output equal to 94 upright kilns—the greatest dinnerware kiln capacity of any individual pottery concern in the world. While no statement has been made by the company, it is generally believed, however, that the success of the tunnel kilns in the new plant may cause the company to consider the building of additional kilns, perhaps to take the place of its present periodic kilns.

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MANTLE AND TILE MEN FEAST

The Denver (Colo.) Mantle & Tile Co. officials with 30 of its employees met at the banquet table in the Auditorium Hotel, Denver, February 24. Speeches, "good eats" and some whole-souled business building ideas were indulged in and then there were passed around some bonus checks, the bonus being called "a profit sharing idea."

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N. J. DOING BIG TERRA COTTA BUSINESS

Terra cotta plants in the Raritan River section of New Jersey are running under full capacity and giving employment to practically all men available. The Perth Amboy plants are said to have orders booked far ahead in the spring and the present call for material is far in excess of plant facilities. A few plants in that district are having considerable difficulty in securing full working quotas.

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FOREMAN MAY BUILD NEW UNIT

Since Charles W. Foreman, formerly general manager of the Owen China Co., at Minerva, took over the controlling interest in the Southern Potteries Co., Erwin, Tenn., there has been a complete reorganization in the factory and selling end.

Mr. Foreman proposes to maintain a northern sales office at Canton, Ohio, altho he will continue to reside in Minerva.

G. F. Brandt, formerly of Minerva, but more recently located at Akron, Ohio, is now in charge of factory operations at the Erwin plant, and the immediate program calls for increased production. When the situation becomes more settled, the company is expected to consider the erection of another seven-kiln unit, altho this was a part of the program when the Southern Potteries Co. first began business.

Edward J. Owen, who had been at the head of the Southern Potteries Co., and who retired when Mr. Foreman became associated with the company, has not made known his future plans.

* * *

SANITARY PRODUCTS COMPANY FORMED

The Sanitary Products Co., Perrysville, Ohio, has been chartered with a capital of \$150,000 to manufacture various kinds of pottery and sanitary wares. The incorporators are F. W. Bell, J. W. Frick, C. M. Bell, A. P. Harrison and A. J. Harrison.

* * *

T. F. REID TAKES OVER SALES

Thomas F. Reid, vice-president of the new Guernseyware China Co., at Cambridge, Ohio, has been placed in charge of the sales department of this company. The concern is manufacturing a general line of both plain and decorated china teapots, hotel china and cooking ware items.

* * *

BUTLER COUNTY MINES BUSY

From the demand that has been made so far for the Butler County Jumbo Clay that is being mined at Poplar Bluff, Mo., the owners of property there believe that a continuous market has been found for it. The clay is used in the manufacture of porcelain ware.

* * *

TERRA COTTA VASE WINS PRIZE

For the purpose of stimulating design work among the members of the Architects' & Engineers' Club, Sacramento, Cal., Jens C. Petersen recently offered a prize of \$20 in gold for the best design of a vase. This prize was won by A. H. McSwiney of the state architect's office. Mr. McSwiney competed against 19 other entrants. The winning design will be the pattern for two vases 24 inches tall, which will be made by Gladding, McBean & Co. One of these will be presented to the architects club and the other to the Sacramento Chamber of Commerce. The vase will be finished in polychrome and black and gold colors and will be made of terra cotta.

* * *

STANDARD WILL BUILD ADDITION

The Standard Sanitary Mfg. Co., Pittsburgh, Pa., has tentative plans under consideration for the erection of an addition to its plant at Louisville, Ky., for considerable increase in production. It will be two-story and basement, brick and of size, 125x500 feet. The estimated cost has not been announced. The local pottery is situated at Sixth and A Streets.

* * *

SANITARY WARE COMPANY FORMED

The Sanitary Products Co., of Perrysville, Ohio, has been incorporated, with a capital of \$150,000, to manufacture various kinds of clay products, including stoneware and plumbing supplies. Incorporators are: F. W. Bell, J. W. Frick, C. M. Bell, A. P. Harrison and A. J. Harrison.

W. S. GEORGE PUTS OUT MANY DESIGNS

Perhaps no dinnerware concern in the United States has presented so many new open stock dinnerware patterns to the trade at one time, as the W. S. George Pottery Co., of East Palestine, Ohio, and also with plants at Kittanning and Cannonsburg, Pa. In all, 19 new patterns are being shown this season on the company's Derwood No. 7 plain shape. The main decorations consist of border treatments, and these range from a five-eighths inch wide border to a very narrow one. A Persian border decoration, which is being shown for the first time this season is attracting wide attention among buyers.

* * *

NEW TILE COMPANY IN ZANESVILLE

The Empire Floor & Wall Tile Co., of Zanesville, Ohio, has been incorporated with a capital of 500 shares, no par value designated, for the purpose of manufacturing floor and wall tile and other clay products. Incorporators are: J. P. Garling, Malcolm A. Schmeiker, Herbert B. Owens, Edward G. Luther and Thomas O. Crossan.

* * *

NORTH EAST PORCELAIN REORGANIZING

Plans are now in the making for the resumption of production in the plant of the North East (Md.) Porcelain Co., under the management of Gustave Glocker. Electric porcelain products will be featured by the new company, which is now in process of organizing. It will have a capital stock of \$50,000, and shares are being subscribed to many residents of that section. A weekly payroll of from \$600 to \$1,300 is proposed, and a contract worth \$50,000 is possible for the company to start operations with.

* * *

SANITARY PLANT BUILDING ADDITION

The Camden (N. J.) Pottery Co., Mt. Vernon Avenue, manufacturer of sanitary earthenware, will begin the immediate erection of a two-story brick and steel addition to its plant, 70x140 feet, to cost about \$35,000. It will be used for general increase in manufacture. The building contract has been let to E. R. Hall, 34 South Seventeenth Street, Philadelphia, Pa.

* * *

SPENDING \$300,000 ON FELDSPAR PLANT

The Mineral Potash Co., Buffalo, N. Y., care of J. P. Andrews & Co., 514 Brisbane Building, securities, has plans in progress for the development of feldspar properties. A complete plant will be installed, including quarrying equipment; crushing, pulverizing and grinding machinery; air compressors and power equipment. A tramway will also be constructed. The initial works will cost close to \$300,000, and a fund of this size is being arranged.

* * *

SANITARY POTTERY FOR INDIANA

The Indiana Sanitary Pottery Co. has been incorporated at Hammond, Ind., with a capital stock of \$100,000 to manufacture earthenware products and plumbing supplies. The organizers are Frank S. Crumley, Abraham Newar, Jacob C. Newar, Irving J. Newar and Peter W. Meyn.

* * *

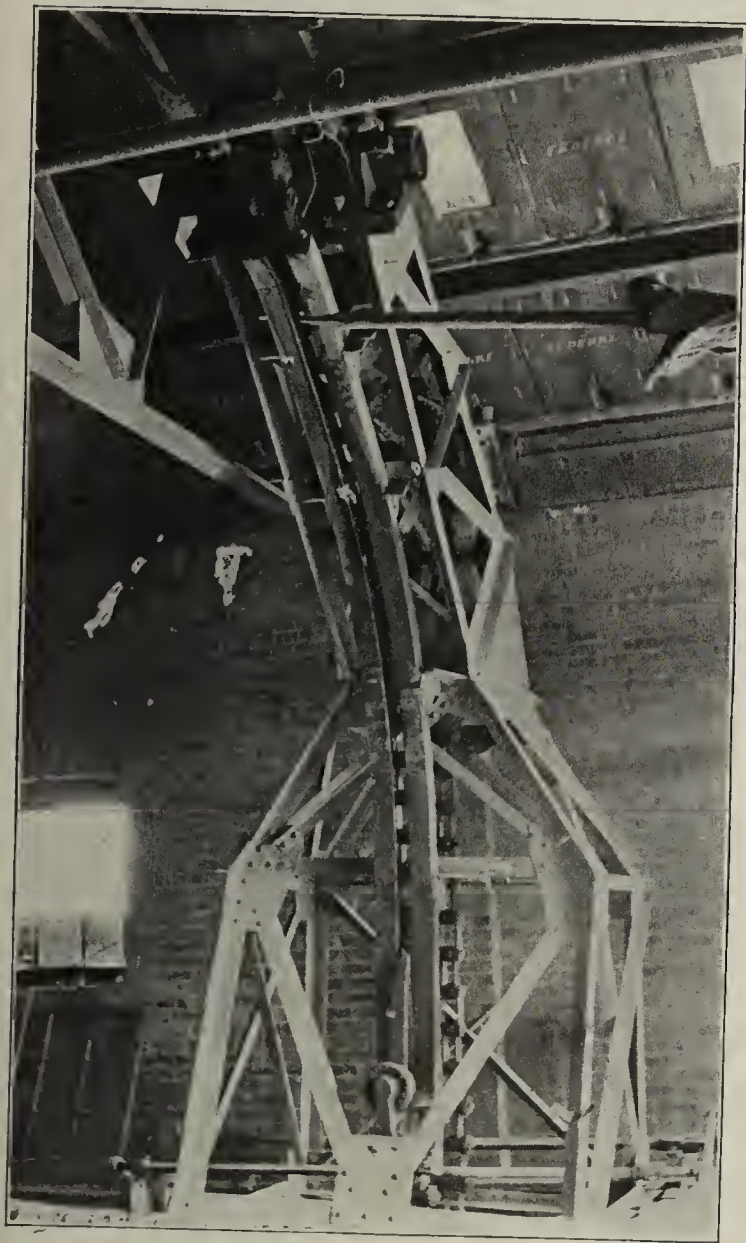
FORM TILE COMPANY IN OKLAHOMA CITY

The Spanish-American Tile Co., Oklahoma City, Okla., has incorporated with a capital stock of \$50,000, and the incorporators are F. W. Gallagher, E. Humphrey and C. J. Gallagher, all of Tulsa.

Management and Superintendence

MECHANICAL CLAY CAR DUMPER

The machine shown here is a clay car dumper which was especially designed for the Illinois Brick Co. about five or six years ago, by the Link-Belt Co. At that time the clay pit equipment was changed over from narrow gage self dumping clay cars of about two-yards capacity to standard gage cars of about five-yards capacity. The new cars were hinged at one side so that they were not of the self-dumping type, and required some device for tipping the cars to discharge their load into the pug mills. This machine was therefore devised. It consists of a structural steel frame,



Mechanical Clay Car Dumper Operated by One Man, Who Also Operates a Drum Hoist Used to Haul the Car Up the Incline from the Pit.

which is supported directly on the inclined trestle on the center line of the pug mill, and is equipped with an endless chain, which runs over three sprocket wheels, and curved angle iron guides. This chain is provided with cast steel hook, having single flanged roller for contact with the ear. It is provided with a reversing friction clutch drive mechanism, which drives the chain in either direction at a speed of about 60 feet per minute.

There is nothing complicated about the operation of this machine. The clay ear is hauled up the incline until it is

exactly in line with the disintegrator. The little roller at the base of the device, which is attached to a chain as shown, engages the body of the ear at the bottom and tilts it toward the disintegrator. The sides of the car are so constructed that the side out of which the material must be dumped stays in position when the opposite side is lifted. This provides free passage for the clay.

The machine is very simple, easy of operation, and the Illinois Brick Co. has had to spend practically nothing for maintenance on the five machines now in operation.

Power is taken from a counter-shaft on the drum hoist which pulls the clay car up the incline, and as they do not hoist the dump ears at the same time, no extra power need be provided for. By a system of levers, the dumping is operated by the same man who operates the incline haul, but the operation is so simple it is easily taken care of by the same operator.

The idea of equipping the hook with a roller was to allow the starting of the car on the incline down toward the clay pit while it was still being lowered by the machine.

As to the capacity of the dumper, the first installation was at Yard 22 of the Illinois Brick Company where they have two pug mills under the same trestle, which means that the single incline has to serve two machines. They have no trouble, whatever, in keeping both machines supplied with clay, and the time required for the trip of the car from the pit to the dumper and return is less than with the old self-dumping method, and the services of one man are eliminated.

* * *

STACKS HELP TO COOL KILNS

H. S. Langworthy, of the Jewettville Clay Products Co., Buffalo, N. Y., uses an idea which is extremely simple, but also very effective, in helping to cool his kilns. After the kiln has been fired off and is ready for cooling, an ordinary sheet metal stack about six feet high, 18 inches in diameter is put over the crown holes. The draft created by these stacks is sufficient to make the heat roar out thru them, speeding up the cooling process immensely. This stack arrangement, when used in conjunction with a motor driven blower drives the heat out of the kiln at a tremendous rate.

Needless to say, the Jewettville Clay Products Co. does not use waste heat for drying, nor would these devices be applicable where the waste heat principle is employed.

* * *

USES CLEVER IDEAS ON PLANT

J. H. Ward Sons Co., Pittsburgh, Pa., have made a change in plant No. 1, employing electric instead of steam power, at a cost of \$15,000. On account of the coal situation this company is now using natural gas for burning purposes. This arrangement makes available the use of two ways for burning—producer gas and natural gas. Most of the preparatory operations are done in the pit and to facilitate the work a storage bin has been installed. The clay comes to the plant in the form of dust. Four men are employed who turn out 30,000 brick per day. Mr. Ward has taken a Ford engine and placed it on a common transfer car by making the following changes: Instead of worm drive, a chain drive is used, a hand rod is substituted for the foot clutch and brake and a foot accelerator is used. The driving principle is the same as that on the ordinary automobile.



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

The Letter Box

A Place Wherein Letters
That Have General Interest
Are Published
and Commented Upon

HAS SAD EXPERIENCE WITH SYNTHETIC BRICK

Brick and Clay Record recently received an interesting letter from a clay man recounting his experiences in manufacturing and selling synthetic brick. It is reprinted here-with.

"I have just received a copy of January issue of Concrete Products in which is an article in reply to yours regarding synthetic brick. I have had some experience making this product for the market. While still being in active charge of a clay plant this is what I learned. The masons on several jobs refused to lay cement brick on account of them making the fingers bleed after a little time. Where they were used the contractor had to be satisfied with a smaller quantity laid up. Another objection, this time by the customer, was that after a heavy rain cement brick showed exactly where the rain had dashed and in damp weather remained that way for several days. It was also claimed that in hauling the brick wore each other away by chafing. Still another argument against their use is that synthetic brick are an experiment which the average house-builder does not feel inclined to try out.

"Needless to say, I was not able to continue making cement brick. It was an experience. I paid for it in losses as I practically had to give away my products. I could not sell them fairly."

Drawn from the Kilns

Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing

DEATH TAKES HARRY WHITE

Harry White, 52, president and general manager of the White Clay Mining Co., died at his home in Cannelton, Ohio, recently.

G. H. JENKINS STRICKEN BY DEATH

George H. Jenkins, 81 years old, one of the veteran brick manufacturers of Missouri, died at his home in Carthage, from ailments incident to old age. He had been a resident of Avilla and Carthage for 40 years. He was a veteran of the civil war and probably saw as much action as any man in that conflict.

HARRY HAUGH DIES

Harry Haugh, 57 years old, secretary and general manager of the National Tile Co. at Anderson, Ind., died recently at his home there following an illness of several weeks. The widow, a daughter Virginia, and a brother survive. Mr. Haugh went to Anderson from Indianapolis about 30 years ago and has been identified long with the brick and tile industry.

YOUNG IS MADE CONTRACTOR'S SECRETARY

Eugene Young, formerly Secretary of the Minneapolis Builders' Exchange, has been appointed Secretary of the Associated General Contractors of America. In the selection



**They make Good Belts
give Better Service**

**CRESCENT
BELT FASTENERS**

A powerful, won't-let-go grip that means economy in time and production. A joining that is permanent for the life of the belt—which saves the belt and makes it last longer. Nothing cut out but trouble, delay and expense.

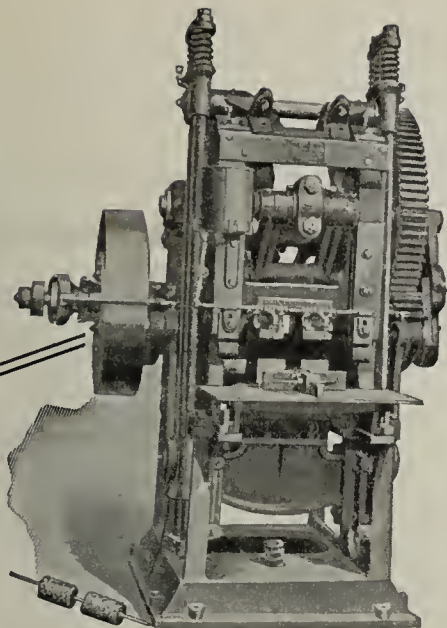
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CRESCENT BELT FASTENER CO.
381 Fourth Ave., New York

CANADIAN BRANCH: 32 Front St., West, Toronto, Canada ENGLAND: 32 Paradise St., Birmingham



Page 237



We Repress Gloninger's Face Brick

In his new up-to-date plant, Mr. Gloninger has installed three "Richardson" Represses, for making his "waterproof" face brick. As he had used this make of repress many years, the above fact is sufficient commentary on his experience with them.

FRANK H. ROBINSON

*Dryer Cars and Clay Working Equipment
Factory and General Office*

918 Behan St., N. S.

PITTSBURGH, PA.



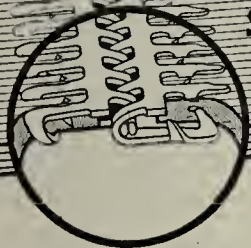
Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.

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Practically and Scientifically Correct

BELTS give longer uninterrupted service when laced with Alligator Steel Belt Lacing, for Alligator is the strongest and most durable of all belt lacings. It is setting new standards in belting performances.

Every Alligator tooth is a vise, clinching around the belt fibers, holding them in equal permanent service.

Practically all authorities on belt transmission recommend Alligator. It is in use every day on millions of belts of every type and size and in every service.

*Sold at Wholesale and Retail
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Company**

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WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

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CHEMICAL CO.,**
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The Digger

for the average sized plants

The machine that digs, loads and mixes enough clay, for a capacity of 25,000 to 100,000 per day at an average cost of \$8.00 per 10 hours. An excellent machine for stripping. Saves enough over hand labor to more than pay for itself in a short time, besides improving your ware thru a better mix. Caterpillar or track mounting, gasoline or electric power.

In many instances it has displaced 12 men and is costing less for operation than the wages of three of them. The price with caterpillars is less than \$3,000

Even the very small plants can afford and ought to have the BAY CITY.

You will need a digger this year.



THE BAY CITY DREDGE WORKS
Bay City, Mich.

SIL-O-CEL

PREVENTS HEAT PENETRATION

TRADE MARK REGISTERED U.S. PATENT OFFICE

A CELITE PRODUCT

Kiln Insulation

HEAT lost through walls and settings of un-insulated kilns increases production costs

- 1—by causing an excessive consumption of fuel;
- 2—by making it difficult to get high temperatures and hold them evenly;
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SIL-O-CEL Insulation reduces production costs

- 1—by preventing heat waste, thus lowering your consumption of fuel;
- 2—by holding a uniform temperature within the kiln and so reducing the number of rejects;
- 3—by protecting the outer walls of the kilns from temperature strains, prolonging their life and saving repair bills.

Complete information on Sil-O-Cel Kiln Insulation gladly sent upon request. Write nearest office for Bulletin B-5A.

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of Mr. Young, the association has obtained a man well qualified to assume the duties of such an office. His success in organization work, and in dealing with labor problems in Minnesota is well known in construction circles.

M. E. GATES VISITING WEST

Major E. Gates, of the Clay Service Corp., Chicago, is visiting various terra cotta plants on the west coast. Mr. Gates will spend a month in the Pacific states.

BELDEN MADE PREXY OF C. OF C.

Paul B. Belden, prominent brick manufacturer and official of the Belden Brick Co., Canton, Ohio, was elected president of the Canton Chamber of Commerce. Mr. Belden had served as president of the old board of directors.

J. W. SOISSON APPOINTED SALES MANAGER

J. Whitney Soisson was recently appointed sales manager of the United Refractories Co., Dunbar, Pa. Mr. Soisson has had considerable experience in the refractories industry and is admirably fitted to handle his new job.

GEORGE C. WHITE SUCCUMBS TO ILLNESS

George C. White, manager of the Wadsworth (Ohio) Brick & Tile Co., died at his home after a lingering illness. He has been a resident of Wadsworth for many years and has been identified with a number of clay and coal companies.

SMITH LEAVING GREEN

C. F. Smith, formerly superintendent of the Fulton (Mo.) Fire Brick Co., and more recently connected with the A. P. Green Fire Brick Co. at Mexico, Mo., expects to leave Mexico the first of March to become superintendent of a brick plant at Ironton, Ohio.

A. S. MIRICK JOINS PAVING BRICK MEN

The Eastern Paving Brick Manufacturers' Association has appointed A. S. Mirick district engineer of western Pennsylvania, with headquarters at Pittsburgh, Pa. Mr. Mirick is a graduate of Cornell University and has had an engineering experience extending over a period of more than 20 years, a large portion of that time being in charge of road and street paving. Among other connections, he has been with the New York State Highway Commission, the State of Nebraska as chief road engineer and lately in private practice as consulting engineer on municipal and highway construction.

HOUGH, EXPERT AUTHORITY IN NEW FIELD

B. Olney Hough, for many years past editor of the "American Exporter," has relinquished that position to establish himself as export counsellor, consultant and advisor to banks, exporters, and manufacturers, with offices under the style of B. Olney Hough, Inc., 17 Battery Place, New York. It may be regarded as significant of the esteem in which his opinions and advice are held that his first retainer in his new profession is from the American Exporter for which he will continue to act in a capacity similar to some extent to his former position, as export and technical adviser and writer, with the title of contributing editor.

STROH-ILGENFRITZ COMPANY ORGANIZED

J. R. Stroh, formerly manager, Mining & Transportation Department, and C. A. Ilgenfritz, formerly purchasing agent, The Brier Hill Steel Co., have organized the Stroh-Ilgenfritz Co. and will deal in coal, coke, alloys, pig iron, steel refractories and other steel plant and foundry supplies. Offices will be located in the Stambaugh Building, Youngstown, Ohio. The company has been incorporated under the laws of Ohio. Both men have much experience in handling steel plant

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It Is Good

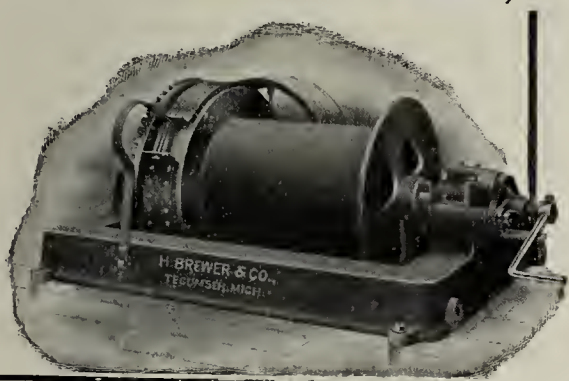
Clay Working Machinery

Block, Brick and Tile Machines	Feeders
Pug Mills	Disintegrators
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Brewer engineering service is available without charge or obligation. Competent men will give you best advice, look over your plant and make suggestions for any needed improvements. Take advantage of this free service. Send for Brewer catalog.

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Simple, Strong, Safe

There's the story of a Caldwell Tubular Tower. It is so simple that you can erect it yourself. It is so strong that it will endure cyclones and tornadoes. It conforms strictly with approved engineering principles. The cost is moderate.

If you want these qualities in a tower, equip yourself with a Caldwell Tubular.



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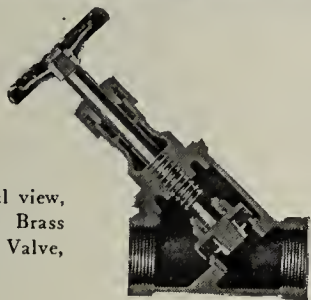
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TANKS
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TOWERS

Made for maximum service
not merely the average



Fig. 124, sectional view,
Jenkins Standard Brass
"Y" or Blow-Off Valve,
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To handle your heavy fluids

You will note that this valve has opening nearly in line with pipe, which permits easy flow of thick, heavy fluids.

It is also widely known and used for boiler blow-off service.

Valve is regularly furnished with Jenkins Renewable Disc and Renewable Seat Ring.

Made in Standard and Extra Heavy patterns, screwed or flanged.

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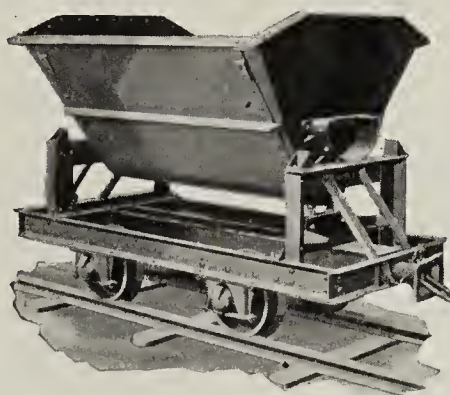
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Hyatt bearings, spring pedestals and spring draft rigging on Lakewood "V" Dump Cars reduce drawbar pull to a minimum, permit high speeds and increase tonnage hauled.

For Clay Cars, Electric Transfers, Clam Shells, Storage Battery Trucks, write "LAKEWOOD."

The Lakewood Engineering Co.
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Have You a Difficult Belt Problem?

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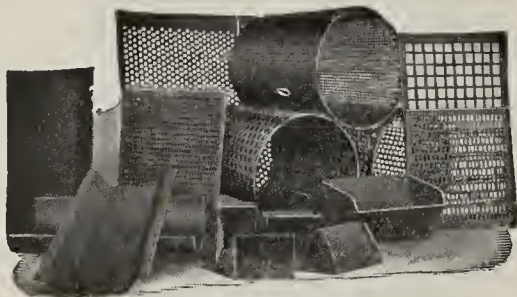
Our belt experts may be of assistance to you. May we figure on your next conveyor?

Quaker City Rubber Co.

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CONVEYOR TROUGH and FLIGHTS
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GENERAL SHEET and
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supplies, and are well known thruout the industry. Associated with Mr. Stroh and Mr. Ilgenfritz in this new enterprise are Jos. G. Butler, Jr., Henry A. Butler, W. E. Beadling and W. H. Wulf.

BUILDING NEW COMMON BRICK PLANT

The Los Angeles (Cal.) Pressed Brick Co. is planning the erection of a new common brick plant which will have a capacity of 100,000 brick per day. The company will use a number of new and modern methods at this plant. Announcement has also been made that this company will build a Harrop car tunnel kiln for the firing of roofing tile and brick.

GLADDING, McBEAN BUILDING TUNNEL KILN

Gladding, McBean & Co., Lincoln, Cal., is now constructing a Russel tunnel kiln which is expected to be ready for operation about July 1. The advantage of this kiln is that by continuous firing the time for the finishing of the product is materially reduced and a 50 per cent. saving in fuel effected.

The novel part of the enterprise is that this tunnel kiln is to be used for the burning of roofing tile. Its use for porcelain and sanitary ware is a demonstrated success, but the experts of Gladding, McBean & Co. have decided that in consideration of the nature of the clay to be used, it can also be successfully used in the burning of roofing tile. The demand for roofing tile is becoming very large, so the expense seems to be well justified. The kiln will be 165 feet long, and will represent an investment of considerable money.

The firm is also installing a new pipe press and a new clay grinder. This indicates an expectation of largely increasing business for the coming year.

COLORADO MANUFACTURERS ORGANIZING

35 clay products manufacturers of Denver and the state of Colorado, met in Denver March 7 and decided to form an organization. A constitution and by-laws were drawn up, passed, and it was decided to call another meeting in the near future, and then officers, office headquarters and working rules will be established.

KAMMERLOHR GETS INTEREST IN LA JUNTA PLANT

The La Junta (Col.) Clay Products Co. has disposed of a large interest in its plant to S. A. Kammerlohr, late manager of the Yankee Hill Brick Co., of Lincoln, Neb., and he has been installed as manager. He is improving the plant by putting in a new 150-horse power boiler and numerous improvements, and expects to have the plant in full operation by March 15, making a full line of face and common brick, building blocks and drain tile.

NEW OFFICERS IN CONNECTICUT COMPANY

Frank H. Holmes, one of the most widely known brick manufacturers in Connecticut, former member of the New Britain Board of Public Safety, was elected president of the Connecticut Brick Co. of New Britain at the recent annual meeting, a session resulting in sweeping changes in the official personnel of the corporation. Former councilman Reginald E. Towers, a son of the late Joseph Towers, who was a leading brick manufacturer of this section, was elected vice-president. J. M. Murray was made treasurer of the corporation and H. W. Upson, secretary.

Retirement of George H. Todd and J. C. Lincoln from the board of directors was announced, the vacancies being filled by election of Messrs. Towers and Murray. Mr. Holmes was previously secretary of the concern, Mr. Todd was president and treasurer, while Mr. Lincoln was vice-president. Messrs. Todd and Lincoln are no longer identified with the brick manufacturing industry, the latter having sold

Confidence! Faith!

We have faith in our ability to better your kiln operation and results by equipping them with GATES AUTO-MATIC STOKERS. We back this up by our willingness to show you any installation we have made.

This is as fair an offer as can be made by anyone, and, we believe, merits your confidence. Come and see them yourself—no matter how skeptical you may be.

The Clay Service Corporation
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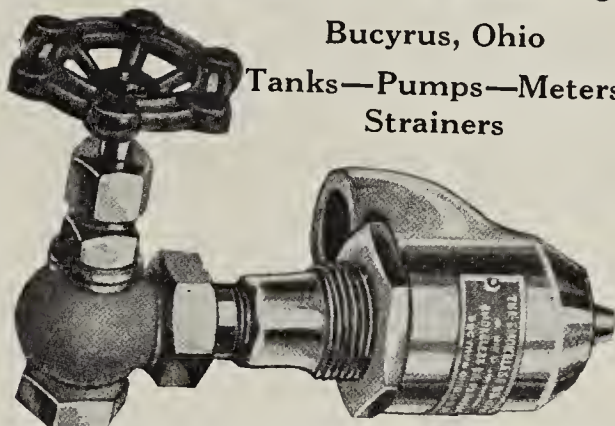
YOUR WARE CAN BE BURNED— CHEAPER and BETTER by the use of oil

Oil is the cheap and convenient fuel. Easy to obtain, easy to handle. It will not only give you quality burns, but will lower production costs. Burn with oil. Let our Engineers give you some real helpful suggestions on oil burning. No obligation.

The Smokeless Oil Burner Co.

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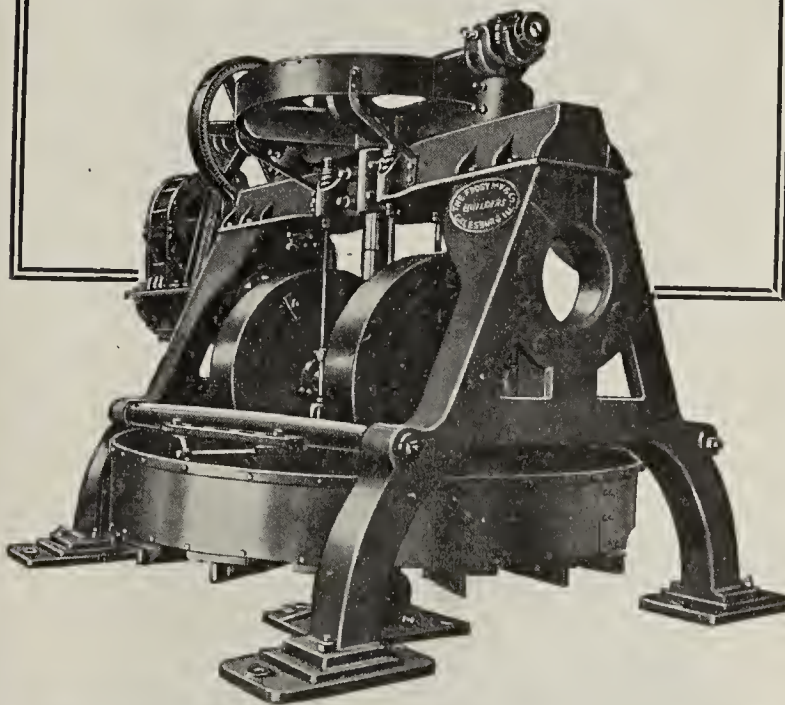
Tanks—Pumps—Meters
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BETTER QUALITY WARE

That is the result when Frost Dry Pans are put on the job.

THE FROST MFG. CO.
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QUALITY ECONOMY SERVICE

TYPE 31 - Six Foot HUM-MER

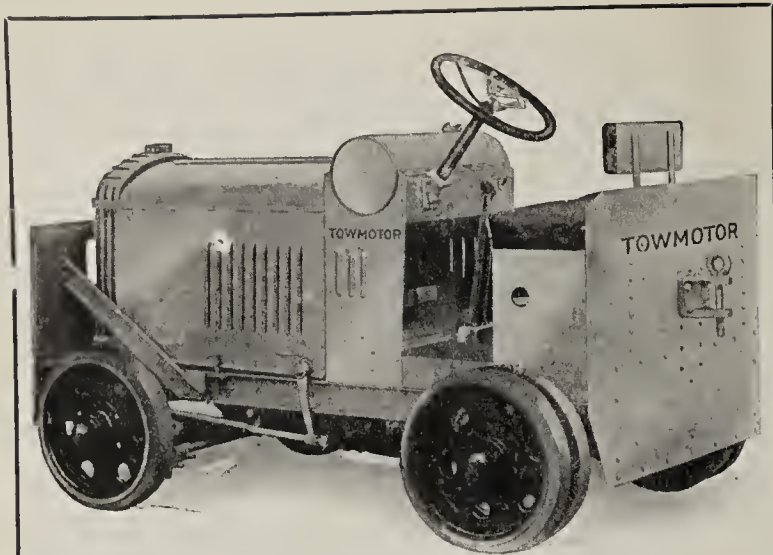
HUM-MER Electric SCREEN

Makes screening and crushing more profitable. Screens any material, wet or dry, from 2½" opening to minus 200 mesh

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THE W. S. TYLER COMPANY
CLEVELAND, OHIO
Manufacturers of Woven Wire Screens
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Not the lowest purchase price, but the lowest ultimate cost constitutes real cost and true economy.

That the TOWMOTOR gives the most for the lowest ultimate cost has been thoroughly demonstrated and proven by TOWMOTOR users, whose names we will be glad to supply along with descriptive bulletins and prices, upon request.

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The Towmotor Company

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Cut Your Burning Time

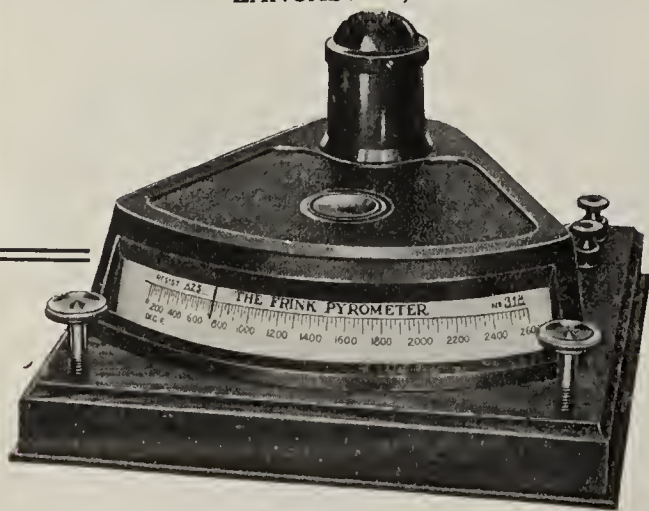
*by equipping your kilns
with*

FRINK PYROMETERS

which afford perfect control of all temperatures—saving time and money in the burning and enabling your burners to hold even temperatures, thus improving the quality.

WRITE FOR DETAILS

THE FRINK PYROMETER COMPANY
LANCASTER, OHIO



out his interests and the former's plant having been destroyed by fire.

Mr. Upson has been employed in the offices of the concern for a number of years.

TO MAKE RED BRICK IN FLORIDA

Dade City, Fla., possesses a deposit of first quality clay which will produce brick of a deep red hue. Mr. Ackerman of that city is desirous of establishing a brick plant on a commercial scale and will give the local people the first opportunity to become shareholders in the plant. A manufacturer well known in the clay products industry informed Mr. Ackerman that he spent several thousand dollars in an effort to locate a territory where red brick could be made with success, also stating that Mr. Ackerman would without a doubt be the manufacturer of the best brick in the state, if the brick (and they undoubtedly are) are red, as he claims. A miniature fireplace as a sample of this clay has been made by Mr. Ackerman and is placed at the foot of a local flag staff for inspection.

BUSINESS 500 PER CENT. BETTER THAN 1922

The B. Mifflin Hood Brick Co., headquarters of which are in Atlanta, Ga., advises Brick and Clay Record that its total business during January and February of the present year was 500 per cent. larger than during the same two months in 1922, certainly a tangible evidence of the remarkable improvement that has lately been experienced by business in the South. During January, for instance, the company's total sales of face brick in Atlanta alone, were one-fourth as large as gross sales for the whole year of 1922.

A recent order of interest, Mr. Hood states, was a single order for roofing tile amounting to \$29,000, believed to be one of the largest single orders any southern plant has reported in some time. Another order recently was for 150 carloads of brick received from Memphis, Tenn.

PLANNING TRIP TO CUBA

The Atlanta Chamber of Commerce, with the cooperation of the Atlanta office of the Bureau of Foreign and Domestic Commerce, is sponsoring a trade trip to Cuba by a group of Atlanta business men and manufacturers, the party to leave Atlanta April 1. The primary purpose is to bring about a further expansion in the export trade which Atlanta manufacturers and jobbers enjoy with the island of Cuba. In the past few years this trade has developed from practically nothing to better than \$1,000,000 yearly, brick and building materials being among the leading products sold by Atlanta manufacturers in Cuba. Export trade in brick to practically all of the Latin-American countries has improved wonderfully the past two months, and is now generally believed to be at the highest mark in the history of the southern brick industry. Cuba is one of the larger buyers of southern made brick.

GEORGIA MEN PUSHING CERAMIC SCHOOL

The first definite step in a well defined program for the development of Georgia's vast clay and other ceramic resources, was taken in Atlanta Saturday, March 10, when plans were made and announced for the organization of the interested industries of the state, and for the establishment at the Georgia School of Technology, in Atlanta, a school of ceramic engineering. A second meeting, to which representatives of all the clay products and affiliated industries of Georgia will be invited, has been called to be held at 11 o'clock, Tuesday morning, April 3, at Georgia Tech.

Representatives of the industries from various parts of the state held a meeting in Atlanta March 10 in the office of President M. L. Brittain, of Georgia Tech, and spent the day in a thoro discussion of the plan for the ceramic engi-

Let Us Prepare An Estimate on a Russell Continuous Railroad Tunnel Kiln for your plant



Designed on correct and sound principles and built by engineers of wide experience. The Russell Continuous Railroad Tunnel Kiln will solve your burning problems, whatever your ware—and will burn it successfully at a substantial saving.

Catalog on request.

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Rubber Goods for the Clay Industry

Test Special Rubber Belting
Indestructible Conveyor Belting
Elevator Belting
Fire Superheat Sheet Packing
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Cobbs Piston Packing
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NEW YORK BELTING & PACKING CO.

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RICH CLAY DEPOSITS

ALONG THE

Lake Erie, Franklin and Clarion Railway

If you are contemplating the construction of a new plant, get full information regarding the rich clay deposits situated in the HEART OF THE GREATEST INDUSTRIAL REGION OF THE WORLD, divided approximately—6 ft. Plastic Clay, 5 ft. Semi-Flint Clay, and 5 ft. Flint Clay, eliminating the necessity of importing any materials. In many places coal is underlying the clay.

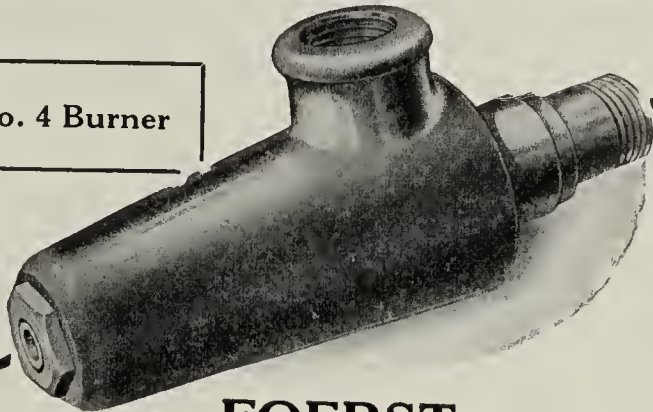
L. E. F. & C. R. R. connecting with N. Y. C. Lines east and west; Penna. Lines east and west; Erie R. R.; Buffalo, Rochester & Pittsburgh R. R.

Write today for full information—No obligation

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FRANKLIN, - - PENNA.

No. 4 Burner



FOERST Fuel Oil Burners Give—

Economy in Fuel—because they develop full efficiency of the oil.

Economy in Labor—because they eliminate back breaking and vitality—sapping work of firing and clinking with coal.

Economy in Quality of Results—because color of ware is the same top and bottom. No sorting is necessary.

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PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

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Engineers
COUNSELLORS IN INDUSTRIAL
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MOBILITY



*The solution to the
more-power problem*

IN THE Northwest Gas Shovel, there has been found the solution of the problem of more power for clay pits. This shovel has only one motor—gas or electric. There are no gears, auxiliary engines, racks or pinions for the dipper stick.

The direct application of the full force of the 57 h.p. gas engine, or electric motor of equivalent capacity, gives 15 to 25% more power while hoisting; ideal control of the dipper for shaking is given.

This $\frac{3}{4}$ yard shovel is equipped with the famed Northwest crawler base and steering device; it travels at good speed over rough ground, up 25% grades and around sharp turns. Write to the Northwest Engineering Co., 1224 Steger Bldg., Chicago, for complete specifications.

NORTHWEST

GAS SHOVEL $\frac{3}{4}$ YD.

**CRANE
DRAGLINE
SHOVEL**

neering course at the school, and the possibilities the project offered for the development of the industry in Georgia.

A preliminary organization of manufacturers connected with the industry in the state was formed at this meeting, with B. Mifflin Hood, of Atlanta, president of the B. Mifflin Hood Brick Co., as general chairman, and J. D. McCartney, of Savannah, Ga., as secretary. This organization will take the initiative in presenting the matter to the owners of clay properties in the state and the allied industries that a full representation may be secured for the meeting to be held in April. An attendance of 200 is expected, Mr. Hood stated.

Among the prominent brick and clay products manufacturers attending the meeting and active in the organization of the engineering course are the following:

B. Mifflin Hood, of Atlanta; V. H. Kriegshaber, president of Victor H. Kriegshaber, building material dealers, of Atlanta; W. E. Dunwody and Henry C. Davis, of Macon; George H. Carswell, of Irwinton; Frank Clark and J. R. Lamar, of Augusta; W. C. Dixon and W. C. Woodall, of Columbus; F. H. Oppen, of Savannah; and F. P. Golden, of Butler. In addition to these there were several prominent members of the state geological department and representatives of the railroads in the state, including R. T. Stull, assistant general industrial agent for the Central of Georgia Railway, who has been unusually active in the experiments that have been in progress with Georgia clays; he was formerly chief ceramist of the United States Bureau of Mines.

Dr. T. Poole Maynard, well known geologist of Atlanta, was named chairman of the committee on information of Georgia clays.

DEE STARTS ANOTHER YARD

William E. Dee Co., has added a new distributing yard, it is reported by the secretary, A. J. Wittak. This company manufactures and merchandises vitrified clay products.

TRI-CITY RAISES CAPITAL

The Tri-City Brick Co., of Port Byron, Ill., with head offices in the Robinson Building, Rock Island, has increased its capital stock from \$60,000 to \$100,000. The former issue was of 1,200 shares of no par value, but the increased capitalization provides for 1,600 shares of no par value. F. K. Rhoads is president and W. C. Brandt, secretary, of the company.

TO SPEND \$15,000 ON IMPROVEMENTS

The Best Brick Co., Evansville, Ind., has plans in progress for improvements in its plant, to include the installation of additional machinery and operating equipment. The expansion is estimated to cost approximately \$15,000.

WITHDRAWS BILL ON INDIANA PAVING

Representative James I. Day, of Gary, Ind., has withdrawn his bill in the Indiana general assembly which would have prohibited the Indiana highway department from constructing in one year more than thirty per cent. of one type of hard surface road. Withdrawal of the bill came as a surprise to those who have been interested in it and who have pointed out what they termed some questionable merits of the bill. When questioned the sponsor stated that he would present the bill later at a more favorable opportunity. The bill would require the highway commission to receive bids on five types of hard surface roads and it contained provisions concerning bonds and obligations to contractors. It was attacked by members of the roads committee, who declared it was designed to aid the brick interests in having more roads paved with brick. This was denied both by the author and several paving brick company representatives.

EQUIP YOUR KILNS

With

BEST'S "CALOREX" OIL BURNERS

- Are simple in construction and operation
- Cheapest to operate
- They have no parts to wear out
- Will cut burning time and increase production
- Are made for high and low pressure.

For the Highest Efficiency and Strongest Economy, there is nothing better than the "BEST."

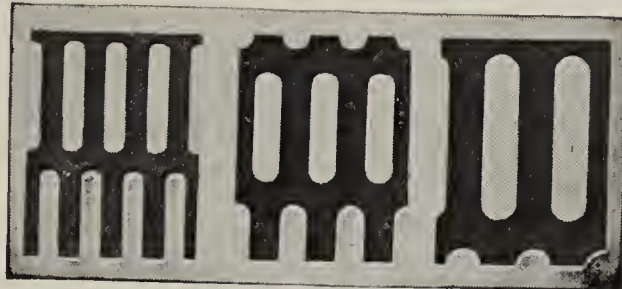
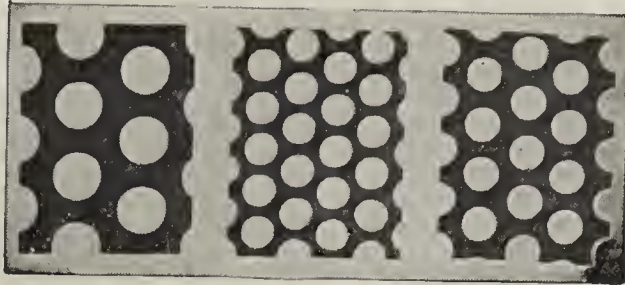
Write our Engineering Department for complete data.

W. N. BEST FURNACE & BURNER CORPORATION
11 Broadway New York

Engineers in Calorex



Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of the Columbia Brick Works, Portland, Oregon, in regard to their

MARION "RUST SPECIAL" Feeder and Mixer

Read his letter:

"We have been using the Rust Feeder for some time. We find that it gives us a better mixture of clay and a more uniform feed into the crusher, and has proved entirely satisfactory for our requirements."

Write for catalog describing the full line of MARION Clay Plant Equipment. No obligation to buy, but money in your pocket if you do.

Marion Machine Foundry & Supply Co.

P. O. Box 395

MARION, INDIANA



HELP

Your Burners Do Good Work

The best of workers can't do good work with poor tools or equipment. And your payroll remains the same whether you realize this or not. Help your workers earn their pay.

Most failures in kiln burning are due to lack of temperature control. It is unfair to both your workmen and yourself to leave this to guesswork.

The installation of Thwing Pyrometers provides a definite means of determining actual temperature. Because they enable you to eliminate guessing—they help your workers to do good work.

Thwing PYROMETERS

Thwing Instrument Company, 3347 Lancaster Ave., Philadelphia, U.S.A.

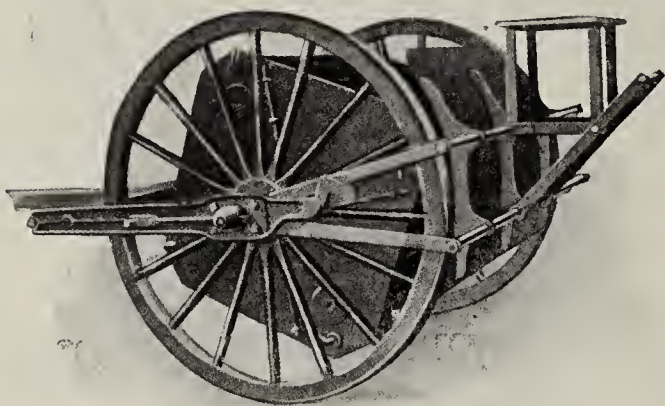
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about **ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.**

Write for full information regarding this machine

Fernholtz Brick Machinery Company
ST. LOUIS, MO.

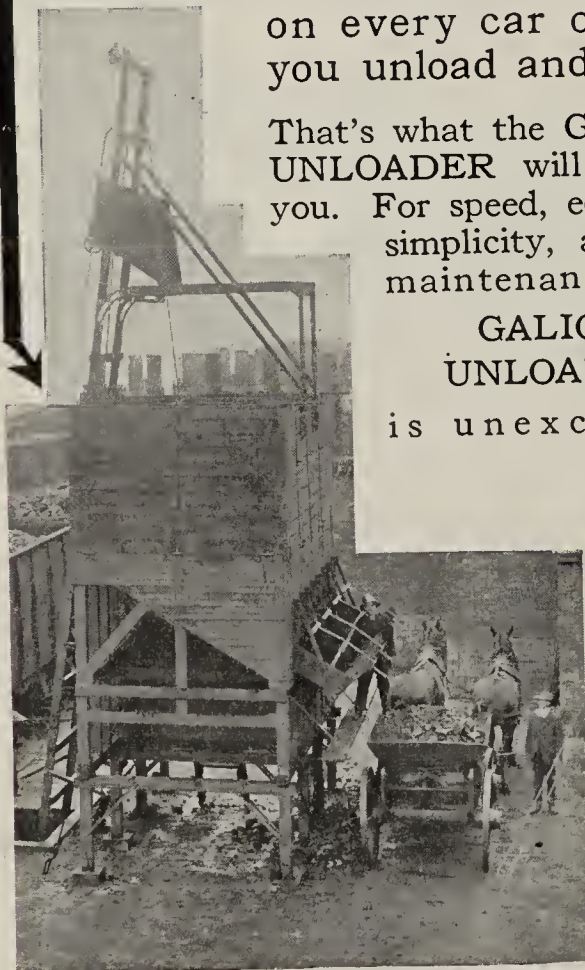


Saves \$10 to \$20

on every car of coal you unload and store.

That's what the GALION UNLOADER will do for you. For speed, economy, simplicity, and low maintenance, the

GALION UNLOADER
is unexcelled.



Have you investigated the Galion Unloader? Do so today!

The GALION
Iron Works
& Mfg. Co.
Galion,
Ohio

INDIANA DETERMINED TO LOWER RATES

When Judge Sidney S. Miller, in Superior court in Indianapolis recently announced that he intended to issue a temporary injunction to restrain the public service commission from putting in effect decreased freight tariffs on brick and clay products in intrastate traffic, attorneys for the commission and for the plaintiff held a conference, after which it was announced that the commission would postpone the time when the order would become effective. It had been fixed to become effective late in 1922, but extensions had been made changing the time to March 1. Judge Miller set the arguments on the petition for a permanent injunction for March 14. Officials of the commission and of the Indiana State Chamber of Commerce, both of whom want the decrease, declare the fight will be taken to the highest courts, if necessary.

RAMSEY BUYS PRICE PLANT

Claude L. Ramsey has purchased the Price Brick plant at Fifth street and First avenue, Clinton, Ia., from Mrs. Thomas Price, it is reported.

TO REBUILD IOWA PLANT FOR \$100,000

The Sioux City Brick & Tile plant at North Riverside, Ia., recently destroyed by fire, will be reconstructed, it was announced by D. P. Mahoney, the president and general manager of the company. The cost will be approximately \$100,000. It is thought that this new plant will be the finest brick plant in the middle west and except for a few changes and additions will be on the same plans as the former one.

FREDONIA MAKING MANY ADDITIONS

Since the Fredonia (Kan.) Brick Co. again resumed operations, many new additions are being made to the plant. Besides the 22 down-draft kilns and two up-draft kilns at present on the plant, kilns in units of four will be established which will be built of steel and brick. New machinery and equipment is being purchased by B. E. LaDow and W. D. Pratt. This company manufactures dry press and stiff mud face brick and has an output of approximately 80,000 brick daily. The colors of the brick vary in 22 shades and gas and coal both are used for the burning in kilns. About 70 men are employed at the plant.

STERLING RAISES CAPITAL

The Sterling Brick Co., 5201 Twelfth Street, Detroit, Mich., has arranged for an increase in capital from \$25,000 to \$75,000, for proposed general expansion.

WILL START KNOB NOSTER PLANT

The brick plant located at Knob Noster, Mo., has been leased by Frank C. Nicholson, Kansas City, Mo., president of the Harrisonville (Kan.) Brick & Tile Co. Mr. Nicholson expects to open it in the near future. Employment of about 25 men will be required for operation. Repairs will be made and new equipment will be installed in the present plant and a new kiln will be constructed.

HYDRAULIC-PRESS EARNS \$511,184 in 1922

Net profits of the Hydraulic-Press Brick Co. of St. Louis, Mo., for 1922 amounted to \$511,184, subject to adequacy of the depreciation and depletion allowances. This compares with a net profit of \$54,188 for 1921.

The net earnings for 1922 were at the rate of \$9.31 a share on the 54,645 shares of preferred stock outstanding. During 1922 dividends of three per cent. were paid on the preferred stock. On December 31 the preferred which is six per cent. accumulative stock had aggregate unpaid dividends of \$2,759,-

Oil Fired Kilns

Have Demonstrated

to Potteries and tile works using oil that a higher percentage of first grade ware can be turned out, and in a shorter firing time, with oil than with coal.

This naturally gives a higher value to the product per kiln.

Ask for information regarding T-J system of burning oil.



Tate Jones & Co. inc.

Furnace Engineers

Established 1898

PITTSBURGH, PA.

New York — Boston — Buffalo — Philadelphia — Chicago — San Francisco — St. Louis

EASTON



Roll-Over Truck Body

Saves time and labor in hauling and dumping. Eliminates the slow and expensive horse and cart. Enables you to handle more clay in the season. Can be profitably employed in winter. Bulletin 33.

Main Office and Works:

30 Holley St., - Easton, Pa.

New York
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San Francisco

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Savannah
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EASTON CAR & CONST'N CO.



2190-E

MINSTER LOCOMOTIVES

Are built for grilling service.

Their rugged construction outlives the severest hauling job upon which you can put them.

Clay plants everywhere are not only getting cheaper haulage with MINSTERS, but are cutting pit costs of time and labor.

Minsters are made in 2 to 8-ton capacities. Ask for full details.

The Industrial Equipment Co.

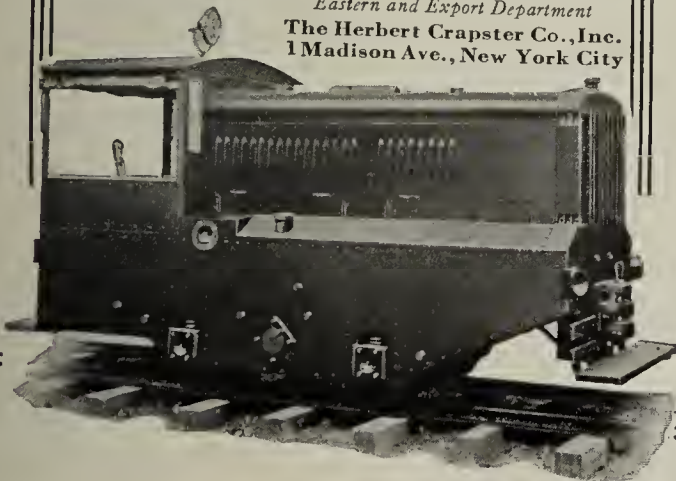
510-512 Ohio Street

Minster, Ohio

Eastern and Export Department

The Herbert Crapster Co., Inc.

1 Madison Ave., New York City



"Them Days is Gone Forever"

A few years ago when labor was plentiful at 18c or 20c an hour, the cost of handling coal, brick and similar products was not so important as it is today. But "Them Days Is Gone Forever." To stay in the race, machinery must replace muscle. Costly back-breaking manual labor can be easily eliminated with a

JEFROB PORTABLE CAR UNLOADER

It is designed to solve various unloading conditions and it does it too—does it efficiently and economically for some of the largest Brick, Coal and other Industrial Plants in the country. Our many years of practical experience with material handling problems is at your disposal.

Get the Facts

Let us tell you more about the Jefrob Portable Car Unloader—how it works—what it has done for others—what it can do for you. An inquiry implies no obligation. Write us now.



Robbins Machinery & Supply Co.

444 W. Grand Ave.

Chicago, U. S. A.

"Machinery to Move Merchandise"

Schurs Kiln Burners

Supreme in Their Field

An installation in your plant is *not* an Expense but is an Investment that will pay big returns over a long period of time. Their life is practically unlimited.

A Burner for Every Kiln

"Be Sure
It's Schurs"



This Adjustable Tip instantly changes the atomizing point to suit low or heavy fire. The perfect water smoking burner.

Over 70,000 in Use.

SCHURS OIL BURNER CO.

ESTABLISHED 1905

5332 Santa Fe Avenue LOS ANGELES, CALIF.

DIESEL ENGINES FOR CLAY PLANTS

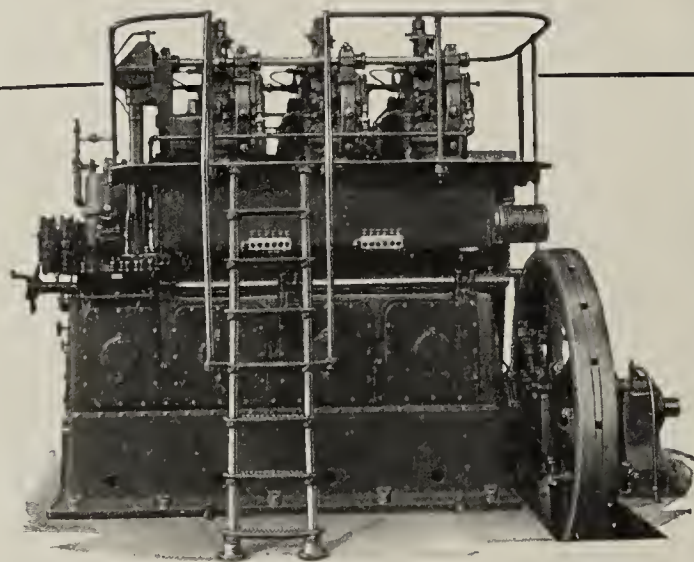
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.



662. Book value of land, buildings, machinery, and so forth, held by the company totaled \$4,721,068. The balance sheet showed cash, notes and accounts receivable, \$1,119,593 and inventories, \$1,834,987, making a total of \$2,954,581 with current liabilities of \$385,299.

OPENS GAS WELLS OF BIG CAPACITY

G. O. French, president of the Consolidated Clay Products Co., Canton, Ohio, states that his company has some new gas wells at its Corning plant and estimates that they will have approximately 1,000,000 cu. ft. of gas per day, which will be used to burn brick as soon as the pipe line is put in to the kilns. At its Malvern plant this company has its own coal mine and produces 100 tons of coal per day more than is required. This gives an opportunity to store if it is desired.

PAVING BRICK DEMAND IS GOOD

While production of paving brick in Ohio has been reported as active during the closed season, manufacturers have had more or less trouble with a shortage of labor. Shipping of these rough clay products from the eastern Ohio district has been more or less active thruout the winter season, and now with the spring season approaching, the demand for cars is more steady than heretofore. Already, some yards have started to ship from their winter's accumulation, despite the fact that many plants are being operated on a rather active schedule.

IRONCLAY OPENS NEW DISPLAY ROOM

The Ironclay Brick Co., of Columbus, Ohio, has just completed its new display room in the Ruggery Bldg., which is one of the most attractive in the middle west. Various panels of brick, terra cotta and tile completely cover the four walls of the room. On one wall is a modern brick fireplace and mantle of approved design. Every style of face brick is shown including the product of the company's factories at Shawnee and Hanover as well as others which are handled by the company. Attractive rugs have been placed on the hardwood floor while new furniture has been installed. The offices of the company have also been redecorated and re-furnished and are one of the show places of Columbus.

TRYING TO KEEP BRICK PRICES DOWN

Inadequate transportation facilities, which are retarding deliveries, and a shortage of common labor, prevalent in the Canton and Uhrichsville, Ohio, districts which is having a decided effect on production, are the two discouraging factors in the brick industry in that section.

Despite this situation brick manufacturers in the Canton district are doing everything possible to prevent further price advances, contending that inflated prices at this time will have a tendency to discourage building.

Building supply houses in the past two weeks have announced a \$3 per 1,000 increase in the price of building brick, and according to reports considerable business has been lost as a result. Leading building supply houses in Canton claim the advance was warranted since they have taken advances from the manufacturers without passing it on to the consumer. It is known that a big percentage of home building contemplated this spring in the Canton district has been suspended temporarily due to the so termed "exorbitantly high prices." Brick is not the only product to advance in price but lime, cement, plaster, and so forth all took a jump since March 1.

The present wage being paid common labor by the brick manufacturers is 40 cents an hour for day laborers. This is almost equivalent to the wage paid laborers during the war, according to manufacturers. Piece workers also are being paid a very high wage, it is said. Some plants which are

Enough Clay In Georgia *To Supply* Entire Needs *of* Clay Industry

DEPOSITS are kaolin, china clay, bauxite, and refractory clays, favorably located to permit mining and marketing with maximum economy.

Dr. R. T. Stull, formerly Chief Ceramist of U. S. Bureau of Mines, now Assistant General Industrial Agent of the Central of Georgia Railway Company, states—

“The research work and plant tests that the Central of Georgia Railway has made possible proves the value of the refractory clays for furnace linings, so important to the industries. It further proves that Georgia kaolins can be utilized for a much wider field of usefulness in the pottery, filler and allied trades.”

Map and description of 66 developed and undeveloped properties in this district mailed on application.

J. M. MALLORY
General Industrial Agent

**CENTRAL of GEORGIA
RAILWAY COMPANY**
SAVANNAH, GA.



Automatic Stove Room *for drying* Dinner Ware (in moulds)

This type of “Proctor” Dryer has demonstrated its high advantages in plants making all grades of Dinner Ware.

It supplies an efficient, continuous method of drying both the ware and the moulds—saving a great deal of time, space, labor and steam over former methods.

Then, too, this machine insures the uniformly perfect drying and shrinking of the ware—therefore, the best finished product.

Its users find it pays for itself quickly and repeatedly. Let us make you fully acquainted.

PROCTOR & SCHWARTZ, Inc.
Drying Machinery for All Clay Products
PHILADELPHIA, PA.



AMSCO

Manganese Steel Wearing Parts for Clay Products Machinery

**T O U G H E S T
L O N G E S T W E A R I N G
M O S T E C O N O M I C A L**

To the users of clay products machinery the durability of wearing parts is of prime importance.

AMSCO Manganese Steel castings are peculiarly adaptable to this work due to the quality of extreme toughness, combined with hardness, which the metal possesses. Breakage is practically unknown and from a wear standpoint, exhaustive tests under the most severe conditions have proved beyond question that Manganese Steel is the most serviceable metal obtainable for the following parts:

SCREEN PLATES FOR DRY PANS

**ROLL TIRES OR RIMS FOR DRY
AND WET PANS**

**TREAD OR MULLER PLATES
FOR DRY AND WET PANS**

PUG MILL KNIVES

GEARS AND PINIONS

We have patterns for parts for all standard machines. Many of the castings are carried in stock.

AMSCO Manganese Steel Steam Shovel parts, wearing parts for Crushers, Car Wheels, Sheaves, Chain, Sprockets, etc., are also used with excellent results.

Write for information and
prices

American Manganese Steel Co.

General Offices: 393 E. 14th St., Chicago Heights, Ill.
Foundries
Chicago Heights, Ill., New Castle, Del., Oakland, Calif.

unable to get laborers are having difficulty in getting out production.

The majority of brick manufacturers in the Canton, Ohio, district when interviewed by Brick and Clay Record's representative, were of the opinion that the last advance in price has been made for the present at least, altho the situation may assume such a status that other increases will become necessary before the real building activity starts. "We brick manufacturers, realizing that high prices will kill the prospects for a building boom, are doing everything possible to prevent the situation from getting beyond our control," said Paul B. Belden, president of the Belden Brick Co.

COLUMBIA TO OPERATE AGAIN

The Columbia Clay Products Co. of Warrenton, Ore., which has been closed several months because of indebtedness, is planning to resume operations. The creditors have indicated their willingness to relinquish liens on the property of the pottery plant to enable operations to be resumed.

INSTALLS NEW MACHINERY

"Business is better now than it has been for ten years," says F. B. Davidheiser, of F. B. Davidheiser & Son, Stowe, Pa. This company has recently installed a clay feeder and mixer, gasoline locomotives, and a small gasoline one-man excavator.

IMPROVING PLANT AT YORK, PA.

William H. Grothe, York, Pa., operating a common brick plant at Boundary Avenue and Albemarle Street, will remodel and improve the yard. The work will include new buildings and the installation of additional equipment to double, approximately, the present output. The company is said to have secured heavy orders for early delivery.

TAKES OVER PENNSYLVANIA COMPANY

The Sharon (Pa.) Brick & Clay Co., recently organized to succeed to the plant and business of the Sharon Clay Products, has begun operations and expects to develop maximum capacity on a basis of 1,000,000 brick per month. It is said that the plant was secured for a consideration of about \$100,000, following financial difficulties of the previous owner. Plans are under consideration for extensions and improvements. H. D. Beegle, New Galilee, Pa., heads the new organization.

VAN ORMER SHIPPING HOT BRICK

Mr. Hayer, the energetic manager of the Van Ormer Brick Co., Pittcairn, Pa., reports a heavy and steady demand for brick. Mr. Hayer has produced a vertical scratch in a shale brick and produces these rough textures in a dark, medium, and light red color. Mr. Hayer's beautiful brick has increased demand to such an extent that greater production is necessary. To accomplish this the company will install a new auger machine and an automatic cutting table. The brick find a ready sale in Pittsburgh, Pa., and vicinity. In fact, the production is sold out and the company is loading trucks and cars from hot kilns.

BUILDING IN NASHVILLE BREAKS RECORDS

Building permits issued in Nashville, Tenn., for the month of February, totaling \$1,506,419, broke all previous records. The best month in the history of Nashville was July, 1922, when the total value of permits reached \$1,001,700. Permits for February, 1921, were \$130,903; for February, 1922, \$298,864; for February, 1923, \$1,506,419.

Building construction is heavier there than ever before. Despite the fact that all previous building permits records were broken in February, the actual conditions are not re-

$$\begin{array}{r} 16.259 \\ 13.15 \\ \hline 213.80585 \end{array}$$

$$\begin{array}{r} 24.67 \\ 3.416 \\ \hline 84.27272 \end{array}$$

Accurate Decimal Points

SUPPOSE you had a Scratch Pad with Decimal Points printed on it. Then when you wrote the two factors of a decimal multiplication with the whole numbers to the left of the points and the decimals to the right, the correct answer would automatically appear, *accurately pointed off*.

Such a Scratch Pad would be valuable. Accuracy of decimals is equally as important as accuracy of figures.

The Monroe Calculating Machine gives you Proven Results, *accurately pointed off*, in just the same way. As you "write" the two factors of any problem in the machine, you immediately read the Proven Answer, with the decimal point in the correct place.

Ask to see why users say "the Monroe is the finest Scratch Pad ever given a clerk." The coupon below simplifies your request.

Monroe Automatic—Marks a new era in Mechanical Calculating and Adding. A portable, electrically-operated machine for use either on desk or stand.

To Add or Multiply, simply touch the Plus (+) Bar. To Subtract or Divide, simply touch the Minus (−) Bar. The Proven Answers automatically appear.

Monroe Standard Model—Every feature of the Standard Monroe is conducive to speed with absolute accuracy. A forward turn of the crank to add or multiply; a backward turn to subtract or divide.

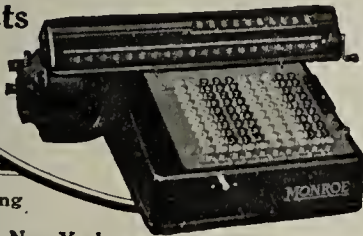
Special Models to fit individual requirements—British Currency Model, Fraction Models, etc., on which all ordinary calculations may also be performed.

There are Offices rendering Monroe Service at all Principal Points in the U. S. and Canada and throughout the World.

MONROE

Adds
Subtracts

Multiplies
Divides



The 20-Place
Automatic
Model

Monroe Calculating
Machine Co.,
Woolworth Bldg., New York

Without cost or obligation (check as desired):

☐ Send further information on: ☐ Arrange for demonstration of:

☐ Automatic Model ☐ Standard Model ☐ Fraction Models ☐ British Currency Model

Firm Name _____ Individual _____

Address _____ City _____ State _____

B. C. R. 3-20-23

*"If It's Dies
You Want
We Make 'em"*

GUARANTEED SATISFACTION!

with every

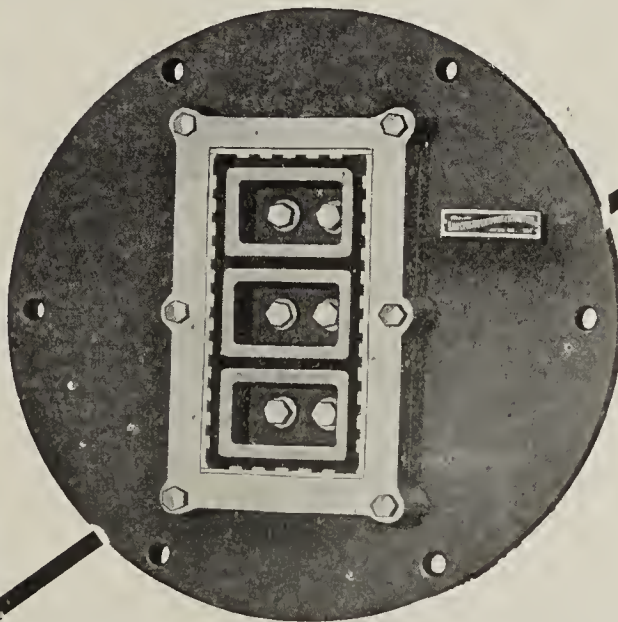
Louisville Die

We specialize in dies and are well equipped to turn out not only dies for hollowware, brick, tile, etc., but intricate and special dies as well.

*Mail us a rough sketch of dies
you want. We'll do the rest.*

THE
LOUISVILLE MACHINE
MANUFACTURING CO.

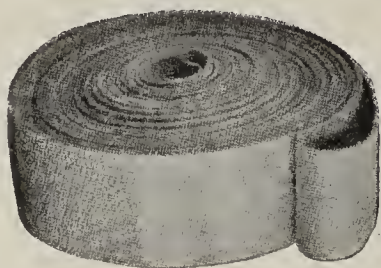
Louisville, Ohio



"The Best Conveying Belt in America"

*says one *company in Kansas City, Missouri, in regard to*

GREEN DUCK BELTS



They further state—

"We believe the Allied people have one of the best conveying propositions on the market, and believe it so strong that we have tied up several thousand dollars in them."

This is one of many companies that are sold on GREEN DUCK Belting. For elevating, conveying, or transmitting, there is NONE BETTER.

**Name on request.*

The Allied Belting Co.
GREENVILLE, OHIO



flected in these records. This is due to so much construction outside the city limits.

There is a greater demand for homes in and around Nashville than the supply. This has been true thruout the two months of 1923, and is a fact, even in the face of the enlarged building program that is being carried forward in this city.

THIS COMPANY BELIEVES IN PUBLICITY

The following excerpt from a letter from Carl F. Kneisel, secretary, Sheridan (Wyo.) Press Brick & Tile Co., is an indication of the way in which some companies are taking advantage of the opportunity given them by their national association to promote their product. Mr. Kneisel refers here to literature put out by the Common Brick Manufacturers' Association.

"During the forepart of the month of February we secured from the Superintendent of our Public Schools, a list of all the school children from six to eight years of age. To each one of these we sent one of the 'Pig Books.' They were sent thru the mail and timed so that they would reach them on St. Valentines day. In this manner we reached 500 homes and brought brick home to all in a way that they can not forget.

"We have found that they were considered as valentines by a good many of the little folks and were very much appreciated.

"It so happened that just at the time the books were sent out (unknown to us) your articles and cut appeared in the local daily 'Enterprise.'

"Then too at this time there was a 'Picture show scene' produced here entitled 'The Landlord,' which brought to the public attention 'Brick' and how they are laid.

"Then to top it all one of the local business colleges had the problem up for the class to work out, 'as to how many brick are required for constructing a certain size brick wall and also to ascertain how many brick are required for the erection of a certain size brick house.

"In addition to a number of business and warehouse propositions, there are three fine large residences to be erected of brick in Sheridan, Wyo.

"The outlook for the sale of brick is so promising that we expect to begin operating just three months earlier than we began in the past two years."

TWO CANADIAN PLANTS BUSY

Medalta Stoneware Co., Ltd., and Alberta Clay Products, Ltd., Medicine Hat, Alta., have been running steadily. Prospects are good for spring business.

R. H. NEW VISITING NEW ORLEANS

Ryland H. New, president of the Hamilton & Toronto Sewer Pipe Co., Ltd., Hamilton, is in New Orleans, La.

The charter of the Brookdale (Man.) Brick & Tile Co., Ltd., has been revived.

HEAR GREAVES-WALKER ON CANADIAN RADIO

H. Busk "listened in" to the lecture on ceramics broadcasted by A. F. Greaves-Walker of Pittsburgh, recently. Mr. Busk is with the Caledon Mountain Brick Co., Inglewood. He made many notes of the address and the ideas are being put to practical use.

MILLAR MADE CHAIRMAN OF SAFETY ASS'N

C. A. Millar has been elected chairman of the Ceramics and Stone Safety Association. Mr. Millar is superintendent of the Ontario Sewer Pipe & Clay Products, Ltd., Mimico. J. S. McCannell of the Milton (Ont.) Pressed Brick Co., Ltd., is chairman of the Joint Association of Safety Associations embracing all the industries.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

This Is Time to Be Wide Awake

REPORTS of contemplated and actual construction continue to break all records. This extreme building activity is reflected in the stupendous business material manufacturers are being offered. The foremost thoughts of the clay manufacturers at this time are how to fill and ship the orders they have on file. There are also some manufacturers who are giving some thought to another question: "How long will this era of wonderful building activity continue?"

The memory of what happened in 1920 is still too fresh in the minds of business men to forget to avoid the pitfalls and excesses which brought on the drastic reaction of three years ago. That is why many clay manufacturers are viewing with alarm the rapidly rising costs of construction.

Labor and price conditions in the building industry as well as in business in general are beginning to assume alarming proportions. It was these two factors which set off the fuse cap of the 1920 prosperity blow-up. Leading business forecasters are already estimating the extent of the present era of prosperity. Their guesses range from next fall till over a period of one year as the time when the peak of general business activity will be reached.

Not all industries reach a peak at the same time. We fear that the building industry because of its greater acceleration will reach its peak ahead of general industry. Yet there are some who feel that we have reached a pressure point in the demand for construction, which indicates a great volume of building in spite of conditions.

Nevertheless, we feel it a duty to point out to clay products manufacturers, the need for caution—not that we anticipate a repetition of the events of 1920 but we feel that it is good business to maintain a policy of caution, especially at this time. Every manufacturer should be careful in giving and taking credits. He should take advantage of existing market conditions but he should operate with an unusually wide margin of working capital. Care should be taken as to plant expansion.

Cancellations of orders must be watched for. Collections should be especially checked up.

Moreover (and we risk this again altho having emphasized it strongly all year) dividends should be paid very conservatively. Dividends and profits should be diverted into a surplus fund to be used to tide a plant over contingencies which an unbalanced worldly economic situation may easily compel a manufacturer to face and to revamp machinery and methods to meet the requirements of the next period of business activity which all economists agree will be on a level lower than the present one.



Make a Unified Effort to Push Clay Ware

IN THE SHORT SPACE of only a few months over 200,000 inquiries were received in response to an advertising campaign conducted in several national magazines by the Common Brick Manufacturers' Association. These returns indicate a remarkable interest in common brick.

Similarly, an investigation conducted by Brick and Clay Record showed an unusual amount of interest among building supply dealers whose desire it is to handle clay products. The reason for their interest is simple enough—they can sell clay products readily now because the public wants it.

These two matters are mentioned because they serve to emphasize a fact that is beginning to become more apparent, namely, the public trend toward more permanent building construction. The clay products industry should capitalize on this tendency and should unite in a campaign to tell the entire nation that clay products in construction makes for permanency as well as economy, comfort, beauty and utility.

The clay products industry, altho it has many branches, is after all one big industry. It manufactures out of common, ordinary clay, a product which is rigidly formed by being subjected to conditions which are destructive to most other products. The enormous heat used to produce clay ware sinters

the millions of minute particles in the brick or tile and fuses them together so that one solid, strong mass is formed as tough as iron but more durable. The particles are not held together by cementation but are fused into one homogeneous mass. The story of why clay products are beautiful, durable, tough and indestructible by neither frost, nor fire, nor flood, nor even time, is not only intensely interesting and fascinating, but it is also convincing as to the value of clay products as a construction material.

Clay products are obviously the material for the public to pave with—to build with. Why should not the hollow and drain tile, common, face and paving brick manufacturers all unite to tell the public that clay products are best? This to be a promotional campaign to build up good will for clay products and entirely separate from the individual efforts of each branch of the industry.

The face brick man need not fear the common brick man, nor the common brick man the hollow tile man. There is business enough available but undeveloped, for every clay product plant. In order to sell your ware—sell clay products.

A prominent automotive equipment manufacturer speaking at a luncheon at Chicago last week, stated that he was shortly going to launch an advertising campaign to sell industrial tractors to the business men of this country. Altho there are several types of industrial tractors on the market and this manufacturer makes only one type, he believes that his business will naturally come if he can successfully put across the general idea of the value of an industrial tractor.

The paint and varnish campaign of "Save the Surface and You Save All" is an example of how various manufacturers can unite in putting across a general idea. The time is ripe now to promote permanent construction by using clay products—a campaign of good will for clay materials to be conducted by manufacturers of hollow and drain tile, face, common and paving brick.

Oh Look Here!—What's Coming?

The production manager of a clay products company operating several plants and known the world over for its excellent products, has written an article to be published in several installments. The manuscript describes a unique small plant of many worthwhile features. For instance, **this plant has round down-draft kilns, yet no stacks. The products of combustion are drawn thru the dryer, yet they do not come in contact with the ware. Burning is speeded up and a higher quality of ware is obtained, yet costs are considerably lower.** This is an unusually high grade article prepared by a ceramic engineer of high repute. The manuscript is fully illustrated with 15 excellent photographs and drawings.

How does he do it?—The dealer of building supplies in a small town of only 400 who annually sells as much as 25 M common brick; 40 M face brick; 5 M hollow tile; and 25 M drain tile. Brick and Clay Record has interviewed some of those dealers in small towns whose sales of clay products run unusually high. You will find this information very helpful to you in speeding up your own small town dealer sales.

What do manufacturers think about dealer distribution?—What part of the output of clay products do you suppose is marketed thru the dealer? Questionnaires were sent to 275 manufacturers, embracing all clay products. To date 80 have replied. More replies are expected. These will form the basis of an article which will contain some information of real value to you.

Beware! Many clay products manufacturers have received letters from a concern known as the Greenwood Co. offering advice on business and income tax records. Do not confuse this with the articles on **"Accounting Simplified"** by G. W. Greenwood, which appear in Brick and Clay Record and which have no relation to any matter issued by the Greenwood Co. Another installment of G. W. Greenwood's series, which has been received with such wide favor and interest, will appear in the next issue.

The April 17 issue will also contain other interesting features—the usual high grade type of articles that have made Brick and Clay Record the leader and the most widely read of clay journals in the world.



The 16 Motor Trucks Shown in the Picture Account for the Empty Railroad Track Alongside. Airplane View of Part of the Simons Brick Co., Los Angeles, Cal.

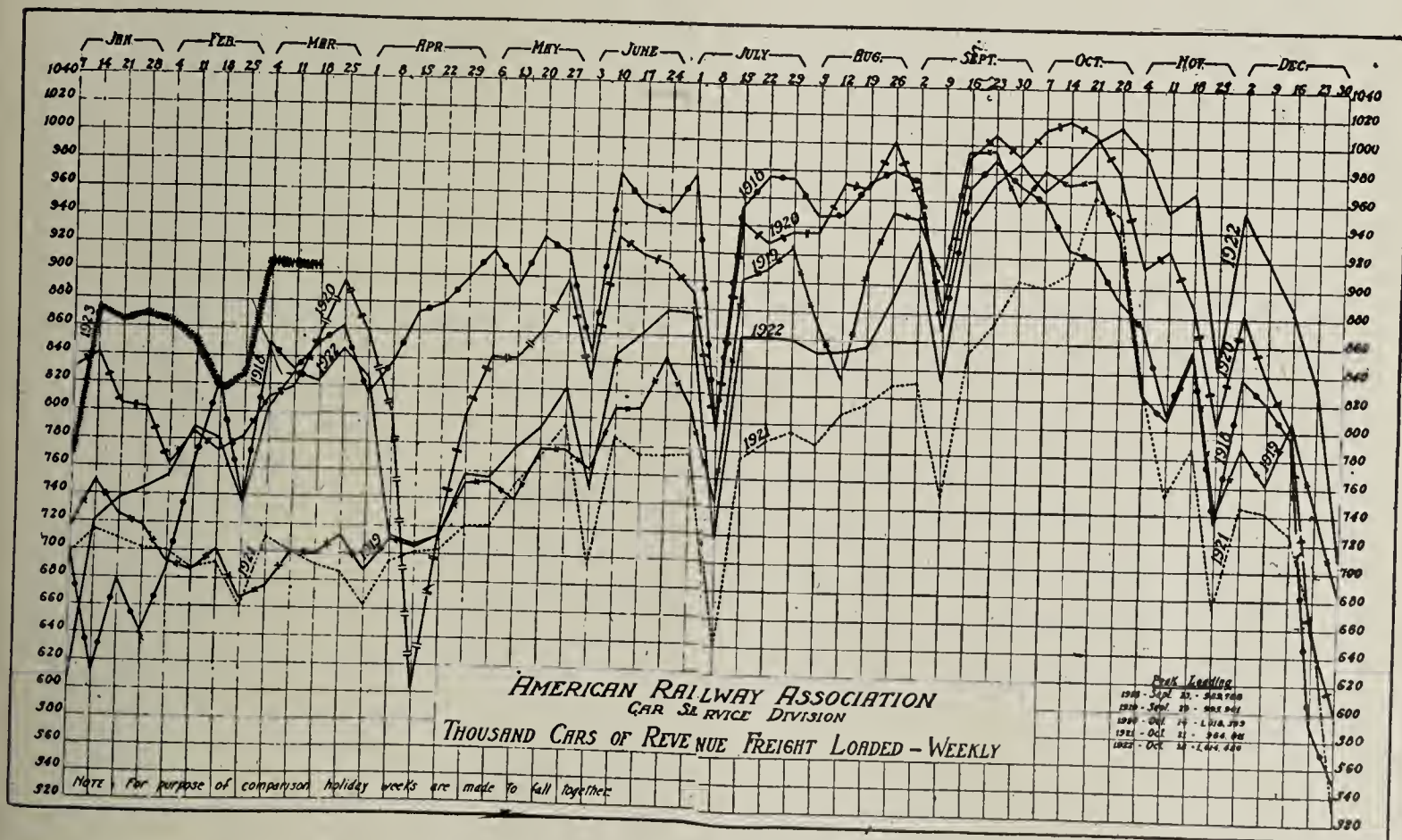
You Can't Sell More Than You Can Ship

Therefore You Must Be Prepared to Ship Every Ton You Produce—Transportation Is Inadequate—How Will You Do It?—The Picture Tells the Story

EVERY WEEK the reports of increases in freight car loadings grow more significant. The opinion is becoming more and more prevalent in industry that the car situation will have a most important bearing on the continuance of the present business prosperity, especially in the construction industry. Altho normally this season of the year is a comparatively dull one, as far as the movement of commodities

is concerned, the shortage of freight cars and general inability of the railroads to handle adequately the volume of freight, is already becoming acute.

As reported in last issue of Brick and Clay Record, clay plants in many localities are receiving only from five to fifteen per cent. of the cars required. The chart reprinted below gives a graphic picture of the ever increasing volume



Graphic Picture of Freight Loadings Which Indicates That Spring Shipments Are Heavier Than Usual

of freight car loadings and shows gradual rise until the peak is reached in September and October. Car loadings this year are far in advance of 1922.

Transportation Too Spasmodic

The railroads are not altogether to blame in the matter of transportation shortage. If shipments could be evenly distributed over the entire year instead of in "peaks and valleys" the transportation situation would not offer nearly as great a problem. During 1921, when shipments were light there existed a car surplus during every month. This surplus extended into the greater part of 1922 running up to as high as 495,000 cars monthly. Then when shipments

however, will not help the industry greatly during 1923 and this is certainly a period in which it behooves the manufacturer to "make hay while the sun shines."

* * *

CUT OUT ANOTHER PAVING BRICK SIZE

Representatives of the paving brick manufacturers and related interests at a conference of the standard committee in Washington, March 27, eliminated from the standard varieties Hillside Brick, repressed, $4 \times 3\frac{1}{2} \times 8\frac{1}{2}$. Suggestions for the elimination of other varieties and sizes will be carried over until the next annual meeting in March, 1924.

Considerable discussion also took place on the advisability of eliminating Dunn wire cut lug brick $3 \times 3\frac{1}{2} \times 8\frac{1}{2}$ and $3\frac{1}{2} \times 3\frac{1}{2} \times 8\frac{1}{2}$. The total shipment of these two classes being 4.2 per cent. for the year 1922. At this juncture William A. Durgin, Chief of the Division of Simplified Practice of the Department of Commerce, called the attention of the conference to the fact that it was the desire of the Department of Commerce that recognized types and sizes retained as standards should at least represent 80 per cent. of the production of the industry and by the elimination of the special Hillside Repressed Brick, the percentage now stands at 79.9 and a further reduction of 4.2 per cent. would bring the production of recognized sizes to 75.7. He suggested, therefore, that should the elimination of these two sizes of wire cut lug brick be carried by the conference that vertical fibre lug brick $3 \times 4 \times 8\frac{1}{2}$ showing 5.1 production during 1921 be substituted. The chair put Mr. Durgin's motion to a vote and it was carried 7 to 2.

Upon motion by George F. Fisk, American Society for Municipal Improvements, unanimously passed, it was recommended that the American Engineering Standards Committee be called upon to make an investigation into the value of the services rendered by the various types of paving brick.

Immediately prior to adjournment Colonel Compton moved that the next meeting of the standing committee should be called sometime during March, 1924, and that a variety survey be conducted for this meeting by the National Paving Brick Manufacturers' Association, as heretofore, and that the chairman should set a day, notifying the committee and, if possible, sending a copy of this survey to each a few days prior to the meeting.

The following members of the committee were present:

P. St. John Wilson, Bureau of Public Roads; R. P. Compton, American Society of Civil Engineers; George F. Fisk, American Society of Municipal Improvements; O. W. Renkert, representing the American Ceramic Society; E. E. Duff, Jr., National Paving Brick Manufacturers' Association; Will P. Blair, National Paving Brick Manufacturers' Association; E. W. McCullough, U. S. Chamber of Commerce; P. H. Bates, Bureau of Standards; William A. Durgin, Department of Commerce; E. J. Mehren, McGraw Hill Co.

Visitors in attendance at the conference were:

F. B. Dunn, Dunn Wire Cut Lug Brick Co.; James C. Travilla, engineer, Dunn Wire Cut Lug Brick Co.; H. L. Carter, Westport Brick Co.; M. B. Greenough, Southern Clay Manufacturing Co.

* * *

GOOD DATA ON HOLLOW TILE FLOORS

The Hollow Building Tile Association has recently put out a four-page folder giving complete information on combination hollow tile and concrete floor and roof construction. This leaflet contains a table showing the safe super-imposed loads in pounds per square foot for combination tile and concrete floors, for various sizes of hollow tile. Another valuable table shows the cubic feet of concrete required per square foot of floor for various types of floor construction and sizes of tile. This information should prove extremely valuable to manufacturers of tile, as it will enable them to talk intelligently to architects and engineers upon this use of hollow tile.

Table showing car shortages since heavy shipments began in 1922. The figures for 1923 are daily averages for each week.

Date	Number of Cars
September, 1922	97,949
October	160,787
November	154,771
December	99,953
January 1 to 7, 1923	73,285
January 8 to 15	73,342
January 15 to 22	72,754
January 23 to 31	73,269
February 1 to 7	70,522
February 8 to 14	72,855
February 15 to 22	76,900
February 23 to 28	80,633
March 1 to 7	79,270

began to get heavy and all available cars were put to use, the shortage amounted to 160,000 during the peak month last fall. The table shows the extent of the car shortage since September, 1922.

To remedy this situation as much as possible the Car Service Division of the American Railway Association has established nine district offices covering every part of the United States. These districts are inter-related with each other and are constantly watching the car requirement of shippers, territories and the different railroads. The Car Service Division has all the power necessary to relocate cars between railroads or between territories of the country. The various district headquarters are located in Chicago, Toledo, Twin Cities, Cincinnati, St. Louis, Birmingham, Dallas. The West Coast and the East are handled from Washington, D. C.

Simons Ships by Motor Truck

The brick manufacturer has it in his power, to a certain extent at least, to become independent of the railroads. The answer is the motor truck. The Simons Brick Co., Los Angeles, Cal., with its fleet of 16 motor trucks, pictured above, is not concerned over car shortages as far as shipments within reasonable hauling radius is concerned. The motor truck has the big advantage of being available at all times for immediate delivery. At the Simons Brick Co., altho located out in the country, traffic on the motor truck road is heavy while traffic on the railroad is correspondingly light. The question confronting the brick manufacturer at present is not so much whether he can produce as much as is wanted but whether he can deliver the materials which he produces.

A little hope of relief is held out in the statement contained elsewhere in this issue that the railroads are planning to purchase 150,000 freight cars during the coming year. That,

Business Briefs and Trend

1923 MAY BRING DISASTER

When considering the building situation of the country, the question comes to mind, "Has the American manufacturer learned the lesson which 1920 tried to teach?"

Building continues in unprecedented volume, while estimates of contemplated construction are greater than ever before in the history of the country. It is the opinion of far-sighted business men that the first thing to stop the building boom will be a reaction against the increasing cost of construction. The temptation for the manufacturer to raise prices in the face of a demand which exceeds the supply is great and upon his ability to withstand this temptation depends to a large extent the duration of the present period of construction activity.

There is no question that if the same policy is pursued which was followed in the years of inflation after the war, namely, that of charging what the traffic will bear, the same, or nearly the same results will ensue. The slump may not be as abrupt as in 1920 and 1921, but it is safe to say that there will be a considerable cessation of building when costs have passed the "reasonable" point.

Speaking of this situation the Architectural Forum says, "What proportion of the great volume of contemplated building will be abandoned because of price and labor conditions? It is quite certain that startling developments will take place, almost to the point of a panic condition in the building industry. It is not certain, however, whether the trend will be in or out of the market. At all events, every indication points to 1923 as the greatest of building years."

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BUILDING WAGES EXCEED LIVING COSTS

Wages paid to workers in the building trades are higher than the present living costs, according to data recently compiled by the National Association of Building Trades' Employers. The difference between living costs and wages can be seen by referring to the charts printed herewith. In making these comparisons, the average wages of bricklayers, carpenters, common laborers, and plumbers were used. These

classes of labor, it has been estimated, put in 76 out of every 100 hours of labor time in building. They offer, therefore, a good basis for the figures here considered.

The present boom in construction is boosting building trades' wages much more rapidly than the advance in the cost of living. The opening of the building season this spring probably will see advances in wages in a great many sections of the country. High wages are primarily a case of supply and demand; the demand for workers in the building trades far exceeding the number available. This is another argument for the establishing of apprentice or building trades schools.

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BUILDING TO REACH \$6,000,000,000

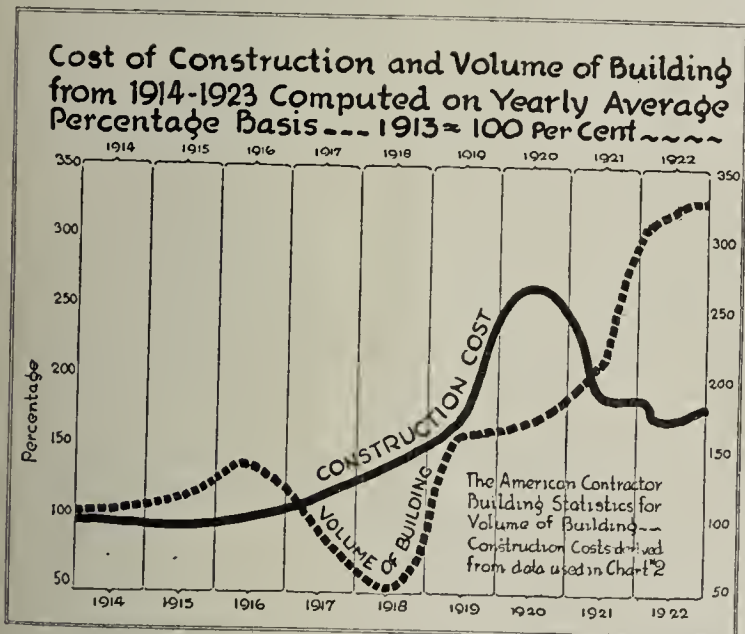
According to statisticians of copper and brass handlers, building totals in 1923 will approximate \$6,000,000,000. The following table shows the gross estimates on which their claim is based:

	1923 Estimates	1922 Expenditures
Apartment houses	\$1,253,000,000	\$ 950,000,000
Churches	530,000,000	205,000,000
Dwellings	940,000,000	680,000,000
Hospitals	595,000,000	230,000,000
Hotels	827,000,000	655,000,000
Office buildings	804,000,000	645,000,000
Public buildings	328,000,000	260,000,000
Public garages	162,000,000	125,000,000
Schools	1,540,000,000	610,000,000
Other buildings	851,000,000	640,000,000
Totals	\$7,830,000,000	\$5,000,000,000

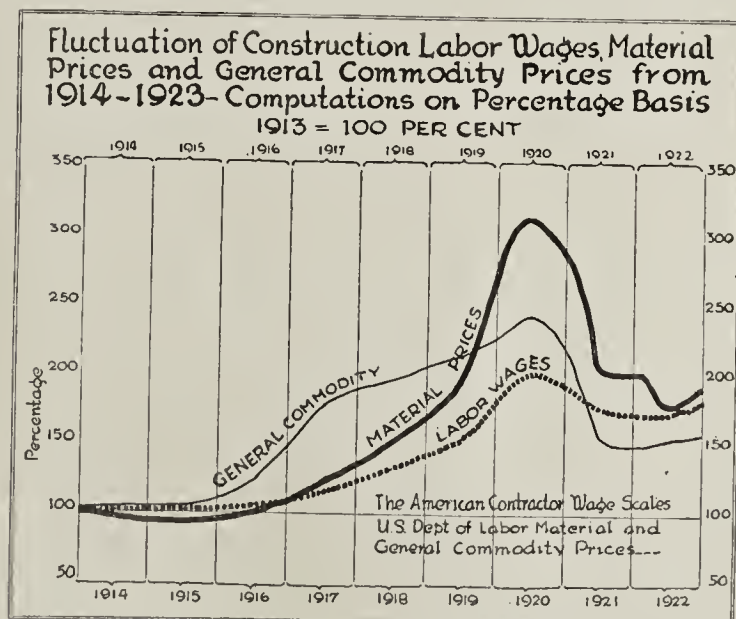
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WAITING FOR LOWER COAL PRICES

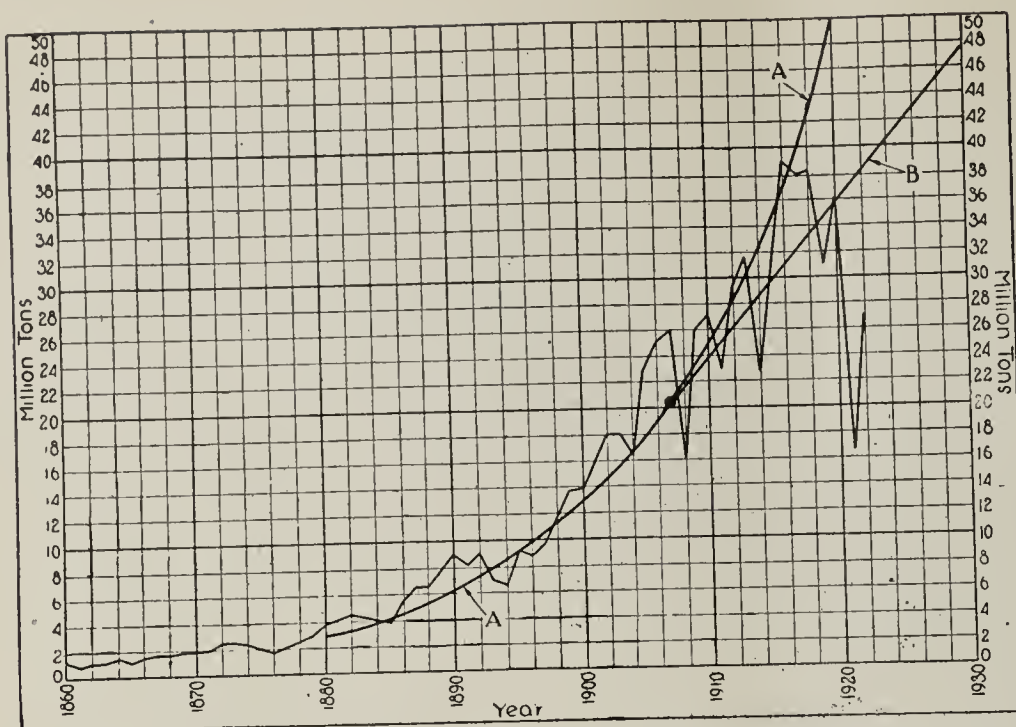
This year industries have moderate reserves on hand, are assured against a strike, and are disposed to wait for further reductions in coal prices, says the Industrial Digest for April. General freight loadings this year have exceeded those



An Interesting Chart Showing the Relationship Between Construction Cost and Volume of Building. Reprinted from American Contractor



The Index Number of Labor Wages Has Exceeded That of Commodity Prices According to This Chart.—Reprinted from American Contractor



Graph Shows Actual and Estimated Production of Pig Iron in United States. Curve A Was Projected from Averages Up to 1913. As Now Projected at B Production of 47,500,000 Tons Is Indicated for 1930.—Reprinted from Iron Trade

"A production of around 50,000,000 tons of pig iron in the United States is indicated by a graphic presentation of figures for the last six decades, and their projection thru the present ten-year period on a basis of known averages," says Iron Trade. This is most encouraging to manufacturers of refractories as the production of pig iron is an almost unfailing barometer for the production of fire brick. A glance at the accompanying curve will show that pig iron made a big recovery after the industrial slump in 1920 and 1921. This corresponds with conditions in the refractories industry which in 1921 suffered the worst slump in its history.

The per capita consumption of pig iron in the decade of 1920 was 585 pounds. This Iron Trade estimates will be increased to 720 pounds or 23 per cent.

of 1922 by 15 per cent. to 20 per cent. and more, and have generally been above the totals of any corresponding weeks in our history, thus reflecting the extensive movement of goods from factory to consumer. The size of the "merchandise and miscellaneous freight" loadings is taken as confirmation of the general trade reports that the increased activity of our factories is being accompanied by a proportionate increase in distribution of products.



R. R.'s WILL BUY 150,000 FREIGHT CARS

To those manufacturers who are unable to ship as much of their product as they can sell, it is good news to hear that the railroads will in all probability add tremendously to their carrying facilities in 1923. It is estimated that approximately 6,000 locomotives will be contracted for, compared with 2,668 last year. About 150,000 new freight cars will probably be added to the railroad's rolling stock. This is somewhat below the number purchased last year, which was 180,900 freight cars.



The Building Situation

THE COUNTRY'S BUILDING record for February surpassed the most optimistic predictions and, even in the face of firm material and labor prices, a Spring building boom of unprecedented proportions was apparently well established by an approximate total of \$340,000,000 for the second month of the year, says the National Monthly Building Survey, prepared by S. W. Straus & Co.

Official reports direct from the building departments of 200 cities show a total of \$231,557,044 permits issued, without any allowances for undervaluation.

Among these 200 cities the records of 187 were compared with February, 1922, and January, 1923, and showed a total of \$229,922,956, as compared with \$155,647,395 in February, 1922, a gain this year of \$74,275,561, or more than 47 per cent. The volume of gain in the same cities over January this year

HOOVER ASKS GOVERNMENT TO DELAY BUILDING

Since writing his latest letter to President Harding, in which he addressed him as "His Excellency," it is reported that Secretary Hoover has been deluged with literature on "Congressional Etiquette" and similar subjects. It seems that the mistake of addressing the President as "His Excellency," which by the way, is a title that can only be correctly applied to the Governor of Massachusetts, was so serious in the eyes of the daily press as to entirely obfuscate the real message of Mr. Hoover's letter.

In this letter, he urged that government construction work be delayed until the present tremendous activity of private enterprise will have subsided. "For the government to enter into competition at the present moment will give no additional employment to labor and no additional production of materials but must in the broad sense in the end displace that much private construction." The Secretary recommends that no government work except that which is absolutely necessary be done at the present time.

was \$23,349,366, which is an increase of more than 11 per cent.

It was considered remarkable when the January building permits this year showed only a slight decrease from those issued in December, 1922, but it is still more surprising that February, the hardest month of the year in the building

It is also significant to note that the Central West is making the greatest strides at the beginning of what appears to be a year of monumental construction records. The February gain in this section over February, 1922, was 96 per cent. In the cities of the Pacific West the gain was 52 per cent.; in the Eastern cities 33½, and in the South 10 per cent.

Interesting figures for a few of the states are shown in the accompanying table:

(Continued on Page 634.)

Problems of Continuous Kiln Burning

Burning in Youngren Type Kiln Explained—
Better Firemen Needed for Continuous Than
for Periodic Kilns—Opinions of Others Desired

Mark A. Taylor, Cr.E.

Vincent Clay Products Co., Ft. Dodge, Ia.

THE BURNING PROCEDURE of the round down-draft kiln has been standardized to a considerable degree. A man who encounters difficulties in the firing of such kilns has a fairly complete and authentic storehouse of knowledge that he can refer to, and which will ordinarily point the way out of his trouble.

The continuous kiln operator is not so well situated. There has been no great amount of writing nor of printed discussions regarding the firing of this type, and so most of the troubles peculiar to these kilns must be threshed out at home with the expensive aid of Dame Experience. This condition is a hindrance to the progress of the continuous kiln, and probably is due to the small number of installations over the country. The writer believes that this kiln will in the future occupy a place of equal importance with the intermittent type, and the railroad tunnel kiln. It embraces practically all the heat saving factors of the tunnel kiln, and brings these savings at a lower first cost, and without the difficulty of mechanically transporting ware thru the various heat zones.

Uses Youngren Type Kiln

Now let us start what is hoped will be a helpful exchange of ideas related to firing the continuous kiln. The kiln from which this data is presented is an 18 chamber Youngren type kiln, fired with fuel oil. The chambers are 32 feet long by 16½ feet wide, and will hold 40 to 50 tons of drain tile, or 70 to 80 tons of hollow block. Draft is induced by a No. 10 Sirrocco fan, aided by a square block stack 85 feet high. Waste heat is drawn from cooling chambers by another No. 10 Sirrocco fan. Two firemen are employed, each on 12-hour shift. These two men, with the head burner, turn out from 1 to 1¼ chambers of ware a day. The ordinary complete firing period for a chamber is 36 hours with approximately 60 hours of preheat preceding. The ware is water-smoked entirely with products of combustion, which causes a slight but not objectionable scum. All waste heat used is drawn from the fourth and fifth chambers back of the full fire.

Burning Schedule

The burning schedule proceeds as follows: Suppose chamber No. 1 has just been taken off fire. No. 2 will have been on fire 15 hours, and will have a temperature of about 1,450 deg. F. The fires are increased on No. 2, and the heat rise is accelerated from 50 deg. an hour to about 100 deg. an hour. Six hours after No. 1 is off, No. 3 is lighted. The temperature of a chamber when lighted is ordinarily 600 to 700 deg. F., and it will raise 50 deg. an hour on light fires with the aid of the heat from the heavy fire behind. We ordinarily get the first shrinkage on a full fire kiln at about the time the chamber ahead is lighted. We try to get one-half inch to three-fourths inch of shrinkage an hour, and shrinkage is complete in 12 hours. The chamber is then held at a soaking heat for three hours, and is finished at 1,950 deg. F. The combustion gases are carried thru four chambers ahead of the full fire, and then into the main draft tunnel. Temperature of gases in the stack is below 200 deg. F.

With the burning procedure in mind we can take up some special phases that require special attention. Draft is of major importance. A single change in draft at this plant has resulted in a fuel economy of 20 per cent. It is better to draw some unnecessary excess air thru the chambers than not to have enough. Remember that in case you are drawing waste heat from the kiln the pull of the waste heat fan is partially exerted in opposition to the draft fan, and this pull must be overcome by the draft as well as the resistance of ware, flues and tunnels.

We set the draft on each chamber at the start of the full fire period. The gage is placed on the chamber ahead, and the waste heat fan is stopped. We now get the true draft reading on the gage, and the draft is set at a predetermined figure by manipulating the dampers or by changing the speed of the draft fan motor. Drain tile kilns are ordinarily set at 16 inches draft, while closer settings are given .02 to .04 inches more. After the draft is once set, the waste heat fan is started, and gage will advance .02 to .06 inches. As the chamber on which the gage is placed heats up, the draft will apparently fall. This does not mean a decrease in draft, but merely that the pressure of the heated gases partially counteracts the negative pressure of the draft. The fuel loss spoken of previously as having been corrected was largely caused by the waste heat fan overcoming the pull of the draft. Thus some of the heat from the fires was drawn back thru the cooling kilns, and wasted. This condition naturally slowed up the cooling, also. I believe no operator of a chambered kiln will go wrong in regulating his draft as has been suggested, altho he should determine for himself the most efficient draft for each chamber of the kiln.

Economical Burning Question

Next in importance to draft is the relation of burning time to fuel economy and quality of ware. Here we have truly a complex problem. One must consider first, a unit composed of all chambers thru which the products of combustion are passing. It is very evident that every heat change within the chamber on full fire is passed on in a decreasing ratio to all chambers thru which the combustion gases pass. To illustrate, fuel economy might prompt us to raise the temperature in the full fire chamber 150 deg. an hour, for we know, we will say, by experience that this ware will stand such a rapid rise safely after it has reached a good red heat. But we have failed to consider the chambers ahead, and find out later, to our sorrow, that the ware in the third chamber ahead, and just in the water-smoking stage is badly shattered. We have forced the heat ahead too rapidly. To go to the other extreme, we will consider that the above experience has made the burners extremely cautious, and they begin raising their full fire chambers only 50 deg. an hour. Straightway the fuel consumption mounts skyward, and we finally discover we are sustaining fuel losses from two sources. First, the very evident loss due to increased burning time, and second, the increased length of burn cuts down the amount of heat in the cooling chambers behind the chambers on fire.



Airplane View of Vincent Clay Products Co., Ft. Dodge, Ia. This Is a Modern and Up-to-Date Clay Plant

There is a happy medium between these two extremes which, when attained, will be well worth all the time and effort that it cost.

Continuous kiln firemen should be above the average in intelligence, for there is considerably more science necessary to burn a continuous kiln than for the intermittent type. At this plant the fireman must have a good eye for heat color values, and must use the pyrometers, cones, trial pieces and water-smoking thermometer to advantage, as we consider each of these items to be of distinct value.

It is hoped that these few experiences will prove of value to other continuous kiln users, and that in the future we may have a more generous exchange of helpful suggestions and ideas.



R. M. A. ANNUAL MEETING IN NEW YORK

The annual convention of the Refractories Manufacturers' Association brought a large number of delegates to New York City on March 21, 22 and 23. The sessions were held in the Vanderbilt Hotel and were well attended. A considerable part of the time was given over to discussions on manufacturing problems with a view to bringing out ideas of value in helping to reduce costs. Probably the most important question which came up for discussion was that of standardization and simplification. Manufacturers unanimously decided to accept the nine-inch basis as standard and to conform to this in their future production.

Two very excellent papers were presented. A. P. Green, president of the A. P. Green Fire Brick Co., Mexico, Mo., read an article on "Heat Insulation," and George W. Jones, secretary of Evens & Howard Fire Brick Co., St. Louis, Mo., spoke on motor drives, referring especially to those in his plant in St. Louis.

A banquet was given on one of the evenings in honor of the founders of the Refractories Manufacturers' Association. Another evening was devoted to a theatre party for the ladies.

Frank R. Valentine, president of M. D. Valentine & Bro. Co., Woodbridge, N. J., was elected president of the association; J. M. McKinley, president of the Crescent Refractories Co., Curwensville, Pa., vice-president; C. C. Edmunds, of the McLain Fire Brick Co., Pittsburgh, treasurer; George H. Diaek, of the Queens Run Refractories Co., Inc., Lock Haven, Pa., and Charles E. Kapitzky, of the National Fire Brick Co., Cleveland, were elected members of the executive committee to serve three years, and J. J. Brooks, Jr., of the Harbison-

Walker Refractories Co., Pittsburgh, was elected to the executive committee to serve one year. Frederic W. Donahoe was reelected secretary.



BRICK AND FRAME PRICE INDICES

Price levels of construction materials advanced during the year as shown by the following index numbers:

Year and month	Frame house materials	Brick house materials	Wholesale prices
1922:			
January	174	179	157
February	169	174	156
March	169	173	155
April	168	172	156
May	173	176	160
June	178	181	167
July	181	184	170
August	189	193	172
September	193	197	180
October	196	199	183
November	196	201	185
December	192	198	185
1923:			
January	195	199	188
February	198	201	192
Per cent. of increase February, 1923, over February, 1922..	17%	16%	23%

At the end of the year stocks of building materials were greatly reduced.



STRUCTURAL STEEL SALES INCREASE

February sales of fabricated structural steel amounted to 80 per cent. of shop capacity as against 76 per cent. for January. Total sales reported for February by 151 companies with a shop capacity of 219,955 tons per month amounted to 176,787 tons, the highest since last May, according to Iron Trade. The increase in structural steel sales is an encouraging indication that industrial and business building and other work of this nature is going ahead at an increasingly rapid pace. Indications thruout the country are that this class of work, which has been more or less neglected within the past year, will occupy a larger percentage of the 1923 building totals.

U. S. Reverses Commission Order

Decides Mennen Company Justified in
Quoting Different Prices to Wholesalers
and Retailers — Practice Entirely Legal

TUESDAY, March 13, Judge Henry Wade Rogers, from the second circuit bench of the United States Circuit Court of Appeals, in a brief, bristling with precedents and terse phraseology, rendered a most important decision, reversing a recent order of the Federal Trade Commission in the well-known case of the Mennen Co., Newark, N. J.

The charges made against the Mennen Company, as will be remembered, included the following: That this company had adopted a plan for the allowance of trade discounts in the marketing of products, in the pursuance of which the Mennen Co. had continued to classify customers into two groups (wholesalers and retailers), according to a basis of selection adopted by it, and thereby allowed to purchasers of the same quantity and quality of its products different discount rates according to such classification.

What the Federal Trade Commission Charged

The Commission alleged that this practice of varying discounts irrespective of quantity and quality "tends unduly to hinder competition between distributors of its products to retailers or directly to the consuming public; that it was an unfair method of competition in commerce within the meaning of Section 5, Act of Congress, creating the Federal Trade Commission, September 26, 1914; that these varying discount rates are a discrimination in price between purchasers of its products for use by consumer or in resales within the United States and District of Columbia, the effect of which may be to substantially lessen competition in the distribution of those products or between the distributors thereof"; that "such discount is not founded in a difference in grade, quality or quantity of products sold and does not make only due allowance for difference in cost of selling or transportation and is not made in good faith to meet competition, and that the plan for classification of customers and the allowance of discriminating rates is not a selection of customers in bona fide transactions not in restraint of trade; and finally, that these actions and doings, 'are contrary to the intent and meaning of Section 2, Act of Congress, to supplement existing laws against unlawful restraints and monopolies, passed October 15, 1914.'"

Altho the Mennen Co. replied to these charges, denying them in toto and asking that they be dismissed, the Federal Trade Commission overruled the motion and decided that the practices of the Mennen organization "amounted to unfair methods of competition in interstate commerce and were a violation of the Act of Congress mentioned." The Commission therefore entered an order "to cease and desist."

Judge Rogers' Verdict Wholly Favors Mennen Company

The Mennen Co. at once appealed from the Commission's verdict and Judge Rogers, after thoroly and exhaustively reviewing the evidence submitted and precedents that very closely touched the essential points of this particular case, rendered his final decision in these words:

"The practice of allowing wholesalers certain rates of discount on quantity purchases, while denying similar rates of discount to 'retailers' (including retailers' mutual or co-operative purchasing corporations) who purchase the same quantity, does not indicate a purpose to create or maintain a monopoly, does not unduly hinder competition, and is not an unfair method of competition."

Judge Rogers refers to five important cases in the course of his comment, each of which, in his opinion, helps to confirm the validity of his latest verdict.

The first of these cases is known as that of the Federal Trade Commission vs. Gratz, 253 U. S., 421, in which it was decided that where fair prices were charged and no monopoly

proved, it was perfectly legitimate for a manufacturer to refuse to sell certain of its products to prospective customers, unless the latter would also agree to buy other products closely related in their use.

Right of Individual to Determine How and to Whom He Will Sell

Judge Rogers quotes this paragraph from the Gratz decision: "If real competition is to continue, the right of the individual to exercise reasonable discretion in respect of his own business methods must be preserved."

Passing from this, Judge Rogers dissects the relation of the Clayton Act and declares that the exact phraseology of Section 2, which it is suggested these acts of the Mennen Co. have violated, show that the real aim of that law was to prevent unfair competition between different competitors, not between customers of the same company.

"The Mennen Co.," continues Judge Rogers, "is engaged in an entirely private business and has a right freely to exercise its own independent discretion as to whether it will sell to wholesalers only, or whether it will sell to both wholesalers and retailers." If it decides to sell to both, in Judge Rogers' opinion, it has a perfect right to determine upon what terms, similar or different, it will sell to these.

Quoting from the case of United States vs. Colgate, 250 U. S., 300, 307, Judge Rogers recalls that by that decision the right of a trader or manufacturer to make his own policy so far as his own customers are concerned, is unquestionable.

In the case of United States vs. Tran. Miss. Freight Association, 166 U. S., 290, 320, these words are recalled, "The trader or manufacturer, on the other hand, carries on an entirely private business and may sell to whom he pleases." "A retail dealer has the unquestioned right to stop dealing with a wholesaler for reasons sufficient to himself, and may do so because he thinks such dealer is acting unfairly in trying to undermine his trade."

Similar precedents were found in the following cases: Federal Trade Commission vs. Beechnut Packing Co., 257—U. S. 441; Sears Roebuck vs. Federal Trade Commission, 258 Fed. 307, 312 (Circuit Court of Appeals in Seventh District Decision declared no charge of restraint of trade could be made that would interfere with the right of an owner of property to sell it at any price or give it away if he chose); Great Atlantic & Pacific Tea Co. vs. Cream of Wheat Co., 227—Fed. 46, 49 (in which Judge Lacombe said: "We have not yet reached the stage where the selection of a trader's customers is made for him by the Government").

Text of Judge Rogers' Decision

Based upon his examination of the evidence in the light of the precedents mentioned, Judge Rogers concluded in these pointed words:

"In accordance with these opinions, we have no doubt that the Mennen Co. had the right to refuse to sell to retailers at all, and if it chose to sell to them, that it had the right to fix the price at which it would sell to them, and that it was under no obligation to sell to them, at the same price it sold to the wholesalers. It did not discriminate as between retailers, but sold to all retailers on one and the same scale of prices. In the same way, it did not discriminate as between wholesalers, but sold to all wholesalers on one and the same scale of prices. There is nothing unfair in declining to sell to retailers on the same scale of prices that it sold to wholesalers, even tho the retailers bought or sought to buy the same quantity the wholesalers bought."

Judge Rogers here details his reasons why the Mennen Co. had a right to include co-operative corporations in its retailer classification. He then continues:

"Whether a buyer is a wholesaler or not, does not depend upon the quantity he buys. It is not the character of his buying, but the character of his selling which marks him as a wholesaler, as this court pointed out in Great Atlantic & Pacific Tea Co. vs. Cream of Wheat Co. A wholesaler does not sell to ultimate consumers but to a jobber or retailer.

"The facts established by the testimony are not sufficient to constitute a violation either of the Federal Trade Commission Act or of the Clayton Act, and they do not support the Commission's conclusion of law. The Mennen Co. is not shown to have practiced unfair methods of competition in commerce. The order to cease and desist is reversed."

* * *

RAILROAD EARNINGS GREATLY IMPROVED

According to their reports filed with the Interstate Commerce Commission the Class 1 railroads of the United States had operating revenues in January totaling \$500,683,400, an increase of about 27 per cent. as compared with January of last year, altho incomplete reports indicate that there was an increase of nearly 39 per cent. in freight traffic during the month, with similar comparison. Operating expenses were \$407,615,000, or 21 per cent. more than in January a year ago, net railway operating income being \$60,554,700, or at the rate of a return of 5.54 per cent. on an annual basis, upon the tentative valuation of the roads.



Paving Brick Business Increases 77 Per Cent.

IMPORTANT CHANGES in the management of the affairs of the National Paving Brick Manufacturers' Association for 1923 were announced recently in connection with the annual meeting of the board of governors of that body in Cleveland, March 27.

R. T. Hutchins, vice-president and sales manager, the Mack Manufacturing Co., Wheeling, W. Va., was elected president of the association, succeeding O. W. Renkert, president of the Metropolitan Paving Brick Co., Canton, Ohio.

Mr. Renkert becomes chairman of the board, succeeding S. M. Duty, president of the Medal Paving Brick Co., Cleveland.

Maurice B. Greenough, who was secretary of the association until the beginning of this year, and now is identified with the Southern Clay Manufacturing Co., Chattanooga, Tenn., was made a member of the board, succeeding W. M. Lasley, president of the Southern company.

Duff Now Permanent Secretary

C. C. Barr, Barr Clay Co., Streator, Ill., was named treasurer. Will P. Blair, long identified with the association in various executive capacities, was appointed first vice-president. Edward E. Duff, Jr., named secretary to the association with the retirement from that position by Mr. Greenough, was elected to that post. Stanley A. Knisely was elected assistant secretary, and B. L. Beller assistant treasurer.

Progress in the paving brick industry was told by Secretary Duff at this meeting. It was shown that the business for 1922 showed an increase of 77 per cent. over the low period of 1918, when production and outlet were curtailed to conserve labor, material and coal during the war. The 1922 figures also showed a seven per cent. gain over the business done in 1921.

Members present were particularly impressed with the improvement made during 1922, which was done in spite of

the handicaps of the coal and railroad strikes during that period, and especially since these disturbances came at the time of year when shipments were at their highest peak.

COAL PRICES RISING SLIGHTLY			
Coal prices seemingly are remaining fairly stable with here and there prices taking a decided turn upward. Production is going downward but the fluctuations are for the most part seasonal. Latest prices available from the Coal Trade Journal are as follows:			
PENNSYLVANIA	Mine-Run	Prepared Sizes	Slack
Pittsburgh District....	\$3.75-4.00	\$4.00-4.25	\$3.00-3.75
Pittsburgh Gas.....	3.75-4.00	4.00-4.25	3.25-3.75
CENTRAL PENN.			
South Fork	3.75-4.75	.....	.....
Miller Vein	3.00-3.75	.....	.....
Good Clearfield	2.85-3.25	.....	.....
Ordinary Clearfield ..	2.25-2.85	.....	.....
Connellsville District..	1.90-2.25	3.00-3.50	1.90-2.25
WEST VIRGINIA			
Smokeless	4.50-5.00	.....	4.00-4.50
Kanawha and Logan..	2.75-3.50	3.50-3.65	2.25-2.50
Fairmont	2.00-2.75	2.50-3.50	2.00-3.00
OHIO			
Pittsburgh No. 8....	2.65-3.25	3.50-4.50	2.20-3.00
Hocking	2.25-2.50	3.25-4.25	1.90-2.10
Pomeroy	2.25-2.50	3.50-4.15	1.90-2.15
KENTUCKY			
Southeastern	2.50-3.50	3.25-5.25	2.25-3.00
Northeastern	2.50-3.50	3.25-5.25	2.25-3.00
Western	2.15-2.25	2.50-3.50	1.50-1.85
ILLINOIS			
Southern	3.00-3.50	4.25-4.75	2.00-2.50
Central	2.25-2.50	2.75-3.50	1.25-1.75
Northern .....	.....	4.50	4.00-4.25
INDIANA			
Fourth Vein	3.00-3.25	3.75-4.00	2.00-2.50
Fifth Vein	1.75-2.00	2.75-3.00	1.50-1.75

* * *

ADVOCATE BETTER BARNS FOR IOWA

Construction of different types of barns was studied by the Iowa State College of Agriculture and Mechanic Arts, indicating that many of the frame structures do not provide an adequate factor of safety and that more care should be used in barn construction if their destruction by high winds is to be prevented. This seems to be a good boost for hollow tile barns since wind, storm, and fire do not damage this type of building. From investigations of masonry water-tanks made by the Iowa State Agricultural Experiment Station, the following conclusions were reached:

"1. That the masonry silo provides very desirable support for an elevated water tank.

"2. It is possible to make the masonry water tank tight over a number of years.

"3. By use of the double walls, freezing of the water in the tank during extremely cold weather can be greatly reduced.

"4. That a masonry water tank is practical from the standpoint of cost."

“Can We Build Homes of Common Brick?” Nation Asks

Six Advertisements Bring 210,000
Inquiries into C. B. M. A. Offices

FINAL RESULTS from advertising that was designed to indicate how many persons really are interested in building brick houses are being obtained by the Common Brick Manufacturers' Association at Cleveland, Ohio, headquarters at this time. Since December 1, according to Charles A. Bowen, assistant to the president, 210,000 inquiries, accompanied by the nominal fee asked, have been received for the small book, "Your Next Home," showing 60 brick houses and plans, these from people in every state of the union.

The photograph accompanying this article is a view in the offices of the Common Brick Manufacturers' Association, Cleveland, right after the mail carrier had deposited his morning's burden of inquiries at this office. In the first month and one-half of 1923, the Common Brick Manufacturers' Association received about 19,000 inquiries, which, it is believed, is the largest batch of inquiries received by any clay products association in so short a space of time.

W. Carver, architect of the association, says of these inquiries, "They come from all states of the Union, and almost everybody who writes us says that they are going to build. The name of every good prospect is sent on to our members. Those of our members who have followed up the lists sent them and who have kept a record of the number of brick sold to these prospects, tell us that they have made money on their investment in the association dues from this source



Just a Small Portion of the Inquiries Being Received by the Common Brick Manufacturers' Association as a Result of National Advertising. The Gentleman Standing Is Charles A. Bowen, Assistant to the President.

alone, not to mention the indirect benefits and the stimulus of their business, which will be felt for many years to come."

The results have been obtained from six advertisements run in six class journals, one time only in each paper, and, according to the owners of these papers, these advertisements have pulled more interest than any similar space ever run by these publications.

The results have encouraged members of the association to increase their production, so that they will be properly stocked with brick when the real demand, which is just starting now, gets under way, and thus forestall the use of inferior and less lasting materials in housing construction.



NO DELAY IN CHICAGO BRICK DELIVERIES

The close of an agreement for 1923 wages between Chicago brick manufacturers and union teamsters and chauffeurs assures the delivery of brick for spring building operations. Picco workers have been granted an increase of five cents a 1,000 and the day workers an increase of 50 cents a day over last year's wages.

Building in Chicago is maintaining totals sufficient to tax the supply of building materials to the utmost. In some instances shortages of cement, lime and gravel have been reported.



The "Altona"—One of the 60 Houses in the C. B. M. A. Booklet, "Your Next Home"



The "Akron"—Another Home from the Booklet "Your Next Home"

How It Is Done in Germany

Describes Some Interesting Equipment Ideas
Which Might Be Adapted to Needs in America
—Use Clay Feeder Almost Universally

Gustav Benfey

Editor's Note.—This is the first of a number of articles dealing with the manufacture of clay products in Germany. The author, Gustav Benfey, is thoroughly familiar with the clay industry of Germany as well as being a very capable writer. He has had 30 years' experience on German industrial papers and is at present editor of *Ziegler-Zeitung*, one of the leading German clay journals. He has also written for *Brick and Clay Record* a number of years ago.

WHEN I FIRST CAME to the United States of America about 30 years ago I was astounded to see how very much farther the brick industry had progressed in America and to what a great extent machinery had been developed when compared with practices in Germany. I spent nearly three years in the United States studying brick manufacturing methods and very much regretted that so few of my countrymen failed to take advantage of the opportunity afforded them to study advanced methods of brick manufacturing. When comparing the methods in use in the two countries, however, we must of course consider that conditions are very much different in Germany and that the Germans must reckon with different problems than the manufacturers in America.

Germany Has Few Large Plants

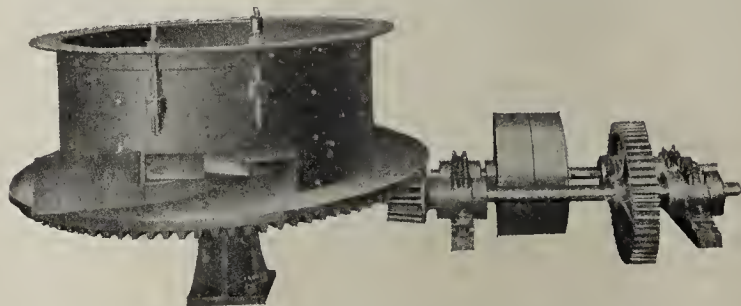
There are only a few very large brick plants in Germany, most of ours are small places with a yearly output of one to five million brick. Since the small plants predominate, the brick manufacturer naturally must cater to their wants and

does not have the same opportunity to develop equipment for the very large plants, such as are common in America. In consequence, the equipment manufacturers' efforts are directed toward the perfecting of the small and cheaper machines and to eliminate, as much as possible, the hand labor which is now adding so tremendously to the cost of manufacturing clay products.

In this direction German machinery manufacturers have accomplished considerable in the last few years. What some of these developments are will be described in this article, and it is my hope that some of the things described may prove of value to the American clay products manufacturer.

Machine Similar to Shale Planer

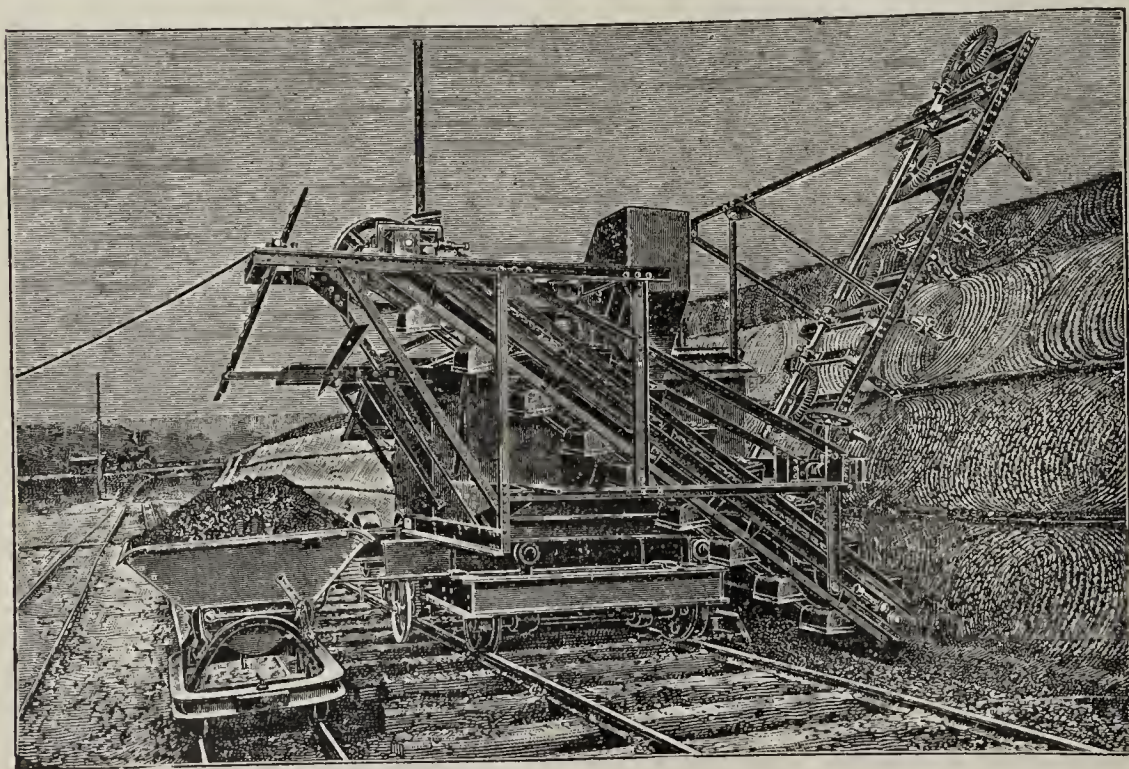
In the clay pits of many of the smaller plants, where different kinds of clay must be separated and useless and



Round Clay Feeder of Type Commonly Used in Germany

foreign materials, such as lime, hard stones and so forth, must be removed from the clay, the "pick and shovel" method can not be dispensed with, costly as this kind of work is. Where these conditions do not exist, however, the use of explosives and mechanical methods of clay winning are becoming increasingly common. The clay winning apparatus used in Germany is to a large extent of the same general type as that used in America, but recently the Lieb-scher Dredger has become very popular in Germany. The principle of this machine is much the same as that of the shale planer in the United States. A picture of it is shown at Figure 1. This machine operates most satisfactorily when the clay is not too moist. It digs the clay from the bank, and mixes the different strata very completely. For this reason it has proved to be a very valuable piece of equipment.

Another interesting piece of equipment is the clay feeder. Practically every modern brick manufacturing establishment in Germany is equipped with such a machine. The work of this



Popular German Type of Clay Digging Equipment. Principle of Operation Is Similar to Shale Planer

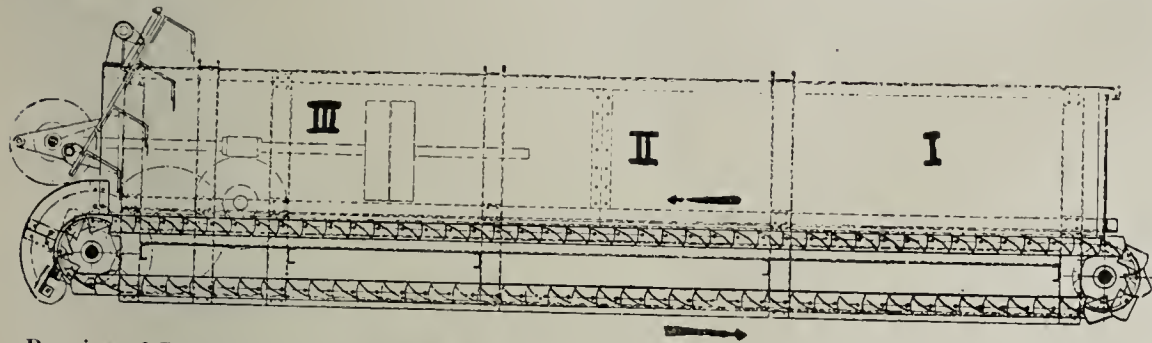
equipment is to distribute the raw materials in regular and even quantities to the tempering apparatus. These feeders have proved so satisfactory and so useful in insuring steady operation of the machinery which follows, in addition to being great labor savers, that their use has spread tremendously.

There are two types of feeders in use, the round and the box type. The round feeder's main function is to feed material evenly, while the box type performs the additional

among two or more producers. The majority of orders placed, however, involve such amounts as 200,000 to 500,000 brick at a time. Refractory manufacturers desire to hold down bookings as much as possible or else quote prices prevailing at time of delivery. Labor is scarce and this scarcity will probably increase as attractive outside work at higher wage rates presents itself to the refractories plant workers.

Several large orders for magnesite brick have been taken during the past month involving as much as 100,000 brick at a time, or for customers' 60-day requirements. One or two makers have taken business in excess of present producing capacity so that they are filled up for several weeks to come. A price of \$65, seaboard base, is firm. Practically the same condition applies to chrome brick at \$50, several producers being filled up for at least four weeks.

Orders involving as much as 100,000 chrome brick at a time have been taken, one this past week calling for 60,000 brick at once and 40,000 to be shipped later.



Drawing of Box Type of Clay Feeder and Mixer. This Works Very Efficiently on German Plants

service of mixing the clay with the other ingredients. The round feeder usually consists of a cylinder under which is a revolving disc. Inside the cylinder three iron arms revolve, crushing hard pieces, mixing the material in a rough way and forcing it thru an opening. This opening can be opened and closed as desired, thus regulating the flow of the raw material to the tempering machines.

Box-Feeder Is Popular

The box-feeder, as mentioned before, mixes the different raw materials and then feeds them to the tempering machines. These machines have proved so very practical and useful that they are becoming increasingly popular and machinery manufacturers of Germany are devoting their energies to perfecting them. A drawing of a modern box-feeder is shown in Figure 2. It consists of a large iron box with a movable bottom of iron plates, built of specially formed angle iron which is best adapted to transport the clay and other materials. The box itself contains two or three partitions separated by slides, the position of which can easily be altered to give the desired space below. At the end of the box a scraper with different length arms is adjusted which cuts the different layers in fine sheets and passes the material on to the next machines.

How Box-Feeder Works

To illustrate how this machine operates. Suppose we fill Chamber I with clay and start the machine. The movable bottom will then carry as much material as will pass under the adjustable partition. In Chamber II there may be another kind of clay which it is desired to mix with the clay in the Chamber I. The desired amount is mixed simply by raising the "gate" between Chambers II and III. The two materials travel into Chamber III where perhaps another material is contained. This third material is carried out on top of the others to the end of the box. Here the arms of the scraper engage the column or raw material, cut it off and thoroly mix it.

This piece of equipment has proved most useful to German manufacturers and proof of its popularity is contained in its rapid adoption by the clay industry here.

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BUY REFRACTORIES FOR FUTURE

Because refractory consumers expect prices on fire clay and silica brick to be increased, efforts to place contracts for third quarter requirements are numerous. Several orders have been taken from regular customers which cannot be shipped until after April 1, a few of which incorporate such amounts as one million or two million brick each divided

SUSPEND RATES TO JULY 22

Proposed freight rate increases on brick and clay articles from points in the Memphis and Little Rock-Fort Smith territories to Mississippi River crossings, including Vicksburg, Natchez, Baton Rouge and New Orleans, were suspended by the Interstate Commerce Commission until July 22. The operation of the increased rates was to become effective March 24 under certain schedules published in Supplement No. 6 to Agent B. T. Jones' tariff I. C. C. No. 1328 and Supplement No. 6 to Agent F. A. Leland's tariff I. C. C. No. 1549. The following is illustrative: The present rate to New Orleans from Mansfield, Arkansas to New Orleans is 18 cents per 100 pounds on brick and 25 cents per 100 pounds on hollow building tile. The proposed rates are 47.5 cents on both brick and tile.

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DISCUSS SUBJECTS ON DRAIN TILE

Committee C-6 on Drain Tile of the American Society for Testing Materials held a meeting in Chicago on January 19, at which reports were received on the following subjects of interest to clay products manufacturers:

Standardization of Drain-Tile Sizes.

Deterioration of Concrete in Alkali Soils.

Test Methods for Determining the Durability of Concrete in Alkali Soils.

Experiments being made by Lewis Institute and the Concrete Pipe Association on the "Resistance of Concrete to Soil Action."

Discussion was had on the absorption of concrete pipe and on the farm-tile classification of drain tile which may result in some action being taken on these subjects at the next meeting.

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NEW BOOK ON PATENTS AND TRADE MARKS

Richards & Geier, patent and trade mark attorneys, 277 Broadway, New York City, have recently published the third edition of their booklet on trade marks, which contains the salient features of the trade mark law and practice together with a discussion of the difficult subject of unfair competition. They have also published a second edition of their booklet on patents and patent law, which may be of interest to clay products manufacturers.



They Tell People About Their Brick

Nashville Manufacturers and Dealers Advertising Products in Newspapers of Four States—Creating New and Greater Markets

J. W. Goostree

W. G. BUSH & CO. and T. L. Herbert & Sons, Nashville, Tenn., have launched, at what they believe to be the psychological moment—an advertising campaign in the newspapers of Tennessee, Kentucky, Georgia and Alabama.

These two firms have built up a large business by well-written advertisements and sound business methods; but not until recently did they contemplate an extensive advertising campaign. It came about in this way.

In 1922 the W. G. Bush & Co., as an experiment, ran a small advertisement for six months in the local paper at Waverly, Tenn., a small town of 2,000 inhabitants.

Test Advertising in Small Town

They selected this town because, altho they had a local representative there, they had not been able to sell many of their brick. They soon found that their sales in brick increased in Waverly; and they traced this increase directly to their newspaper advertising, which was done on a small scale, and of course, at a small expense.

About three months ago they started a Home Building Page in the Sunday edition of one of the local papers. This page was filled with interesting material for the prospective home builder. Pictures and plans of brick houses of various architectural design have been displayed.

From the start this page was a success. That this page has aroused considerable interest in home building is borne

out by the fact that they have received more than 200 inquiries for the Common Brick Manufacturers' Association booklet, "Your Next Home," which is sold for ten cents.

The interest aroused by this page and the increase in business due to its influence caused the company to decide in favor of the extensive advertising campaign they had been contemplating for some time.



The Office of W. G. Bush & Co. and T. L. Herbert & Sons, Nashville, Tenn.

When plans for the campaign were complete they decided to let a well organized advertising agency handle it for them; so the entire account was placed with the Casey-Lewis Co., 609-611 Stahlman Building, Nashville, Tennessee.

When interviewed for Brick and Clay Record, Rumsey Lewis, said, "It is our intention to confine our copy to newspapers of Tennessee and adjoining states, for the present, at least. Later on we may expand our campaign to include a few trade journals and local magazines.

Sons, and W. G. Bush & Co., and the father of the three daughters who are also connected with the Bush-Herbert interests.

W. G. Bush & Co. was founded in 1869 by Major W. G. Bush. At that time his grandson, Bush Herbert, was a very young man, but when old enough to begin learning the brick and tile business, he started in with his grandfather. Today Bush Herbert, vice-president, is the senior member of the Bush-Herbert companies.

A new three million dollar cement plant, now in the embryo stage in Nashville, in which they are interested, will make the Bush-Herbert company one of the strongest clay manufacturing, cement manufacturing and building supply firms in the South.

The officers of W. G. Bush & Co. are: T. L. Herbert, Jr., president; W. Bush Herbert, vice-president; R. D. (Bob) Herbert, secretary-treasurer.

* * *

U. OF I. OFFERING CERAMIC SCHOLARSHIPS

The University of Illinois is offering to each county in the state of Illinois one scholarship in ceramic engineering, it has been announced from the offices of the ceramic department of the University. This scholarship is awarded on nomination of the Illinois Clay Manufacturers' Association of an applicant who intends to follow the curriculum in ceramic engineering. The candidate must be at least 16 years of age, a resident of the county from which he is nominated, and must meet in full the requirements for admission to the engineering college.

Further information may be had by application to C. W. Parmelee, secretary of the Illinois Clay Manufacturers' Association, and acting director of the department of ceramic engineering at the University of Illinois.

* * *

SETTLING EUROPE'S PROBLEMS

The formula for settlement of Europe's economic problems unanimously agreed upon by the Rome Congress of the International Chamber of Commerce is "so sound and so convincing" that public opinion thruout the world will compel its adoption at an early date, President Julius H. Barnes, of the Chamber of Commerce of the United States, declared in a cablegram from Rome made public by the American Section of the International body. Mr. Barnes said:

"Despite conflicting national interests and racial differences, business information thus records the essential principles under which alone an atmosphere of permanent peace can be reconstructed in Europe. The Rome Congress recognized that solution of these economic problems would be translated directly, thru reviving industry, into opportunity and employment and, therefore, into individual prosperity and happiness."

* * *

NEW ILLINOIS RATES AGAIN SUSPENDED

The Illinois Commerce Commission has further suspended the advances published by various Illinois Railroads in tariffs effective October 16, 1922.

The Commission first suspended these rates until February 13, 1923, and now this is extended until August 13, 1923.

However, briefs have now been filed by both railroads and shippers so that it is natural to expect an actual order some time in the near future and this order will set a basis for Illinois Intrastate brick rates.

**Type of Advertising
Used by W. G. Bush
& Co. and T. L. Her-
bert & Sons, Nash-
ville, Tenn., in Daily
Newspapers to Get
More Business**

**Build Right and Get
Life-Long Satisfaction**

YOU are likely to build a home but
once. It is important, then, that
you build right—that your home
be beautiful, durable, convenient and
economical. If you build with bri-
ck your home will give you all the
things, and so assure your life-
satisfaction.

Write for our literature on home
ing, or better still, come to our
on Third avenue and let us show
houses of various architectural
ranging in size from three
rooms. We will be glad to pre-
sent you the many advantages
to be found if you build with
brick.

BRICK and INSURANCE

Over fifteen thousand people lost
their lives by fires last year. Is it not
important then that your home be as
near fireproof as possible? You owe
this to your family. Build with
brick and the insurance on your
house as well as the insurance on
your house furnishings will be less.
Brick saves you money and gives
you better satisfaction in every way.
"Build with Brick."

W. G. BUSH & CO.
NASHVILLE
Brick Manufacturers Since 1869.

W. G. BUSH & Co. T. L. HERBERT
Brick Manufacturers Since 1869 Builders Supplies

"W. G. Bush & Co. are members of the American Face Brick Association and the Common Brick Manufacturers' Association, and they felt that their advertisements in the newspapers should be "geared" with the advertising done by these two associations.

Replies to Advertisements Are Many

"Their advertisements are designed to promote the wider use of brick, not only in the walls of houses, but they are pointing out the advantages of using brick as a material for retaining walls, porches, walks, garages and other small structures around the house."

R. D. Herbert said, "During the month of January we have received a good many replies from people wanting our house plans, and in this way we have built up quite a valuable mailing list of prospects. From this list our salesmen have already sold several brick jobs.

The Bush-Herbert interests are so closely related it is difficult to think or speak of them separately. They are, in reality, one big family. This is partly due to the relationship between the members of the two firms. Members of W. G. Bush & Co. are, in a great many cases, members of T. L. Herbert & Sons.

Major W. G. Bush, founder of W. G. Bush & Co., was the grandfather of the three Herberts, of T. L. Herbert &

Accounting Simplified

G. W. Greenwood

Treasurer United Refractories Co., Dunbar, Pa.

CHAPTER X.—OTHER OPERATING REGISTER ACCOUNTS

IN SOME LINES of business, and this includes many firms in the brick business, material is sold with freight allowed to destination. The purchaser is charged with the full amount, including the freight allowance, and in the final settlement provision is made for this deduction.

For instance, a bill of material is sold for \$500 with freight allowed to destination, the freight being estimated at \$100. In many cases this freight is worked out by the firm's traffic department exactly, barring the tendency of humans to err occasionally. The invoice is made out for \$500 and the customer is charged with this amount. But instead of crediting Sales with this \$500, it is only credited with \$400, the difference of \$100 being credited the Freight Allowance. Then when the customer pays his account, he remits \$400 together with his statement of freight paid amounting to \$100. He is credited with the full amount of his invoice, \$500, his account in the Accounts Receivable Ledger being squared, so far as this charge is concerned. The Bank is charged with his remittance, \$400, and Freight Allowance is charged with the deduction. Or, the railroad company may require the prepayment of this freight. In this case the check drawn is credited to the Bank and charged to Freight Allowance, and the customer is not entitled to any deduction when he remits.

Handling Freight Allowances

Where a firm sells all, or any considerable portion, of its output on this basis, it should carry in the Operating Register a pair of columns for "FREIGHT ALLOWANCES," a corresponding account being carried in the General Ledger.

In order to keep track of these allowances, the sales record should provide for the estimated freight allowance in each case. At the close of the month, the purchasers are charged with the full amounts of their invoices, the total is charged to Accounts Receivable in the Operating Register, the sum of the estimated freights is credited to Freight Allowances and the balance to Sales. Thus, the Sales account is credited only with the value of the material sold, f. o. b. the factory, as should be the case.

Examples

For instance, suppose the sales, including freight, amount for a month to \$25,000; that the estimated freight which is either to be paid and deducted by the customer, or prepaid by the company is \$5,000. Then the net sales, f. o. b. factory or original shipping point is \$20,000 and the entry at the close of the month is like this, the names in capitals referring, as heretofore, to the headings of pairs of columns.

	SALES	FREIGHT ALLOWANCES	ACCOUNTS RECEIVABLE
	Credit	Credit	Debit
Sales	20,000	5,000	25,000

The "FREIGHT ALLOWANCES" columns contain charges for all freight properly deducted by customers in settlement of their accounts or for freight prepaid by the company. The account is balanced the same as all others at the close of the month so that the account in the General Ledger shows the amount of outstanding freight owing either to the customers or to the railroad company. This balance is to be deducted from the Accounts Receivable in making up financial statements at the close of any period; it should not be shown among the Accounts Payable.

General Ledger Trial Balances, 1923			
	January 1, 1923	January 31, 1923	February 28, 1923
Accounts Receivable	500000	600000	635000
Bank	317500	287500	142500
Property	5000000	5000000	5000000
Inventory - Brick	200000	200000	200000
Inventory - Supplies	100000	100000	100000
Deferred Charges	2500	2500	2500
Expenses		180000	370000
Accrued Liabilities		20000	20000
Accounts Payable		100000	150000
Mortgage		1000000	1000000
Sales		200000	200000
Capital Stock		5000000	5000000
Totals	6120000	6120000	6450000

Figure 13
606

Discrepancies between the estimated freights and the actual amounts allowed should be closed out periodically, say once a year, which is often enough when the estimates can be made carefully and closely.

In the clay industry, to the writer's certain knowledge there is no reason for being out of adjustment five cents a month. Where it is properly carried, one can tell what discrepancy, if any, has occurred in the case of every sale, and the sales on which freight is still outstanding, the net result being the balance as shown by this account in the General Ledger. One can catch at once an error in a freight bill, and there have been cases in the writer's experience in which a single freight bill contained errors in weight, rate and extension—none of the three being correct and not even in

accord with one another. There have also been many cases where the freight was prepaid by the shipper and also paid and deducted by the customer.

Columns for Notes Payable

Sometimes a company has outstanding so many notes that it is necessary to carry a "NOTES PAYABLE" set of columns. In other cases it may be advisable to carry columns for "TRADE ACCEPTANCES." An installment house would require columns for "NOTES RECEIVABLE." Whenever there are so many entries of one general character that it is a matter of economy to carry them in a flock by themselves, one can always assign a pair of columns for this purpose. The Operating Register is as versatile in this respect as is up-to-date filing equipment.

Chapter XI.—GENERAL LEDGER TRIAL BALANCE SHEET

OVER 75 YEARS AGO there appeared in London Punch a couple of lines reading as follows:

WORTHY OF ATTENTION

ADVICE TO PERSONS ABOUT TO MARRY—Don't.

Possibly no other lines of that pseudo-humorous periodical—not even Hood's "Song of a Shirt"—have ever been more widely quoted. We may paraphrase this advice thus:

WORTHY OF ATTENTION

ADVICE TO PERSONS WHO CONTEMPLATE
CLOSING THEIR BOOKS MONTHLY—Don't

Most of those who read these chapters do not close their books oftener than once a year anyway, and it is from their standpoint that these articles are written. They need offer no apology for the fact that they do not close them oftener.

Much Unnecessary Bookkeeping Done

In fact, it is the largest companies, in the brick business and out of it, which appear to be most guilty when it comes to excessive and unnecessary bookkeeping. No company, however large, needs to close its books more than once a year, and at the same time it need not sacrifice any of the information it is now securing along cost keeping lines.

In Chapter IV we described the Recapitulation of Expenses sheet, by which any number of expense accounts are

removed from the General Ledger with a reduction of work, and an increase in information, but without scrambling the accounts.

We next consider a companion sheet, playing the same role with regard to Assets and Liabilities.

Trial Balances

Let us take an Operating Register sheet and head it "GENERAL LEDGER TRIAL BALANCES, 1923." Head the first pair of columns, "January 1, 1923," assuming that the system is being installed on that date. The next pair is headed "January 31, 1923," and so on thruout the year, using a cut sheet with six pairs of columns, three pairs on each side, between two full sheets. This gives a total of 14 pairs of columns with a descriptive space. (See figures 13 and 14).

Can Add Indefinitely to System

If the system were to be installed in July, then the first pair of columns used would be headed "July 1, 1923." A new sheet should be started at the beginning of each fiscal year, which is usually the calendar year.

September 30, 1923														October 31, 1923														November 30, 1923														December 31, 1923													

Now in our illustration we are going to make everything as simple as possible in the beginning, using only few of such expense accounts as might be carried by any company. Later it will be shown how one may add to this system to his heart's content, always remembering that he is the sole judge as to when he has gone as far as he deems necessary. It is like a radio receiving set, which one may add to without discarding any of the parts he already has installed.

We are introducing a Mortgage account, not with the implication that mortgages are frequent in the brick industry, but to show how one may deal with accrued interest on mortgages, bonds, and so forth.

Suppose upon taking off a trial balance from the General Ledger on January 1, and striking balances instead of using debits and credits we find the following (the order of the accounts being immaterial):

Accounts Receivable	\$ 5,000.00	
Bank	3,175.00	
Property	50,000.00	
Inventory—Brick	2,000.00	
Inventory—Supplies	1,000.00	
Deferred Charges	25.00	
Expenses		
Accrued Liabilities		\$ 200.00
Accounts Payable		1,000.00
Mortgage		10,000.00
Sales		
Capital Stock		50,000.00
	<u>\$61,200.00</u>	<u>\$61,200.00</u>

Initially there is no balance in the Sales account, since this amount was closed out at the close of the year. But it is to be hoped that it will not remain empty at the close of the month. Nor have any Expenses as yet been charged up.

The Brick Inventory is the value on January 1 of all brick in stock and in process of manufacture. The Supplies Inventory consists of everything in the nature of supplies, on hand and unused.

The Deferred Charges are for one month's Fire Insurance prepaid and unexpired, at \$25 per month. The Accrued Liabilities are for four months' interest on the mortgage, at \$50 per month. The other accounts are readily understood.

Just as we pointed out that the Recapitulation of Expenses is not a Profit and Loss statement, so we must bear in mind that a Trial Balance is not necessarily a Financial Statement. A Financial Statement corresponding to the trial balance here shown would be something like this, there being many different forms in which financial statements may be made up:

BRIXTON BRICK COMPANY Balance Sheet, December 31, 1922.

Assets	
Accounts Receivable.....	\$ 5,000.00
Brixton National Bank.....	3,175.00
Property	50,000.00
Inventory	
Brick on Hand and in Process of	
Manufacture	2,000.00
Supplies	1,000.00
Deferred Charges	
Prepaid Fire Insurance.....	25.00
TOTAL ASSETS	<u>\$61,200.00</u>
Liabilities and Capital	
Accounts Payable	\$ 1,000.00
Mortgage	
Purchase Money Mortgage, payment	
to be made at the rate of \$1,000	
per year, with interest at six per	
cent. on deferred payments.....	10,000.00
Accrued Interest on Mortgage.....	200.00
TOTAL LIABILITIES	<u>\$11,200.00</u>
Capital Stock Issued.....	50,000.00
TOTAL LIABILITIES AND CAPITAL....	<u>\$61,200.00</u>

In a later chapter we will discuss further the preparation of these necessary statements; at present we are dealing with Trial Balances only.

Use Summary Sheets If Preferred

Instead of Operating Register Sheets, one may use summary sheets; in the writer's experience the Operating Register sheets have proven the better. One can purchase standard columnar sheets with pairs of columns, similar to the Operating Register sheets except that the characteristic center key column is lacking. But it is not advisable to use a greater number of forms when two will suffice.

We now write up the Operating Register for January, post the General Ledger, take off a trial balance, strike debit and credit balances and insert them in the column headed "January 31, 1923."

Suppose the General Ledger balances for the close of January are as follows:

Accounts Receivable	\$ 6,000.00	
Bank	2,875.00	
Property	50,000.00	
Inventory—Brick	2,000.00	
Inventory—Supplies	1,000.00	
Deferred Charges	25.00	
Expenses	1,800.00	
Accrued Liabilities		\$ 200.00
Accounts Payable		1,500.00
Mortgage		10,000.00
Sales		2,000.00
Capital Stock		50,000.00
	<u>\$63,700.00</u>	<u>\$63,700.00</u>

It will be noticed that we are still carrying the same inventory values of brick and supplies as at the beginning of the month, altho we know these are not the same except under exceptional circumstances. Neither do the Deferred Charges or the Accrued Liabilities remain the same; yet we have not changed our figures.

Ledger Changes Not Made Monthly

As a matter of fact, these items are not changed oftener than once a year; the General Ledger is not the place to record monthly fluctuations.

This fact is ordinarily not appreciated by companies which change their Inventory accounts in the General Ledger every month so as to conform to actual physical inventories which have been taken. They charge up an additional month's interest which has accrued on the Mortgage, and make any changes necessary in the Deferred Charges. Their purpose is to secure monthly financial and profit and loss statements, but they go far afield to do so.

It is by no means necessary to make these entries in the General Ledger to obtain these results. They can be more easily secured without this additional work.

Much Work Could Be Eliminated

The writer once asked the lecturer on mathematics at Balliol the practical use of one of his subjects. After a moment's reflection he replied, "I use it to keep a roof over my head." Aside from its value as a training in mental gymnastics, he was right. If we were asked why certain entries are made monthly in books of account by some companies, we might be compelled to make the same response as to the practical value; they help keep roofs over the heads of bookkeepers.

In the illustrations (figures 13 and 14), we show these trial balances for January 1, January 31, February 28 and also, omitting intervening months, for the close of the year.

Balance at Close of Year

Let us assume that the trial balance at the close of the year is as shown in the table at top of page 609.

Accounts Receivable	\$ 8,580.00	
Bank	1,575.00	
Property	50,000.00	
Inventory—Brick	2,000.00	
Inventory—Supplies	1,000.00	
Deferred Charges	25.00	
Expenses	20,870.00	
Accrued Liabilities		\$ 200.00
Accounts Payable		1,850.00
Mortgage		9,000.00
Sales		23,000.00
Capital Stock		50,000.00
	<u>\$84,050.00</u>	<u>\$84,050.00</u>

Now, this list of General Ledger accounts may appear brief; but only a large company with a complex organization will require more than 20 General Ledger accounts. And with this sheet before him, month in and month out, one can trace the rise and fall of Accounts Receivable; of Accounts Payable; of the Bank Account. He sees the growing accumulation of the Expenses Account and of the Sales Account. He sees when the Mortgage dropped from \$10,000 to \$9,000. In fact, this sheet gives him more information—information in better form, than he can derive by leafing thru any General Ledger—even the abbreviated, vitalized ledger we have been describing; for it affords a ready comparison of groups of accounts, such as the combined Accounts Receivable and Bank accounts, as compared with the Accounts Payable.

Very Little Posting Required

Just notice also how the amount of work in connection with the General Ledger has been reduced to a minimum; there is but one posting a month to Accounts Receivable, whether the number of customers is ten, or a thousand; one posting to the Bank account regardless of the number of deposits and of checks; one posting to Accounts Payable; one to Sales; one to Expenses, tho at the same time we may be carrying a distribution numbering 20 classes or 200. To

many of the accounts, no posting at all for months at a stretch. The total number of postings for a year will in most companies be fewer than a hundred; just think what that means when it comes to taking off trial balances from this ledger. And the reduction of work does not stop even there; when it comes to closing the General Ledger at the end of the year, it will be found in the next chapter that a ridiculously small number of closing entries is required.

And in another chapter it will be shown that even in the case of those who require the most elaborate monthly Profit and Loss statements, the situation will be unchanged, just as the same ten figures will form inconceivably large, or infinitesimally small, numbers.

Brick and Clay Record desires to call the attention of its readers, who have been following G. W. Greenwood's series of articles on "Accounting Simplified," to literature which has been sent out by a concern called The Greenwood Company. This company is advertising "Greenwood's Approved Business and Income Tax Record." This is not the system being published by Brick and Clay Record and has nothing to do with it in any way, nor has G. W. Greenwood, the author of the Accounting Simplified articles any interest in the Greenwood Company's system. Apparently this literature has been sent to some clay products manufacturers as several letters have been received which evidently referred to this system. Therefore, remember that if you buy the Greenwood Company's system, you are not buying Brick and Clay Record's "Accounting Simplified."



New York Sees End of Tax Exemption as Building Stabilizer

NEW YORK building trades in general hail the housing tax exemption decision handed down by Mr. Justice Tierney as a timely stabilizer of the building construction market, says the Dow Service daily building report of March 24, 1923.

It is felt that this decision is the biggest single influence that has yet been exerted since war times to bring the cost of building construction back to something like normal levels.

The well informed building construction industry of New York has been discounting for some months the possibilities of the Board of Aldermen extending the tax exemption ordinance which expired on March 31. There was too much realization of the way in which ground valuations have been raised to make up the city's income deficiencies and the disposition of investors to believe that there was now no great need for emergency legislation of that sort. Hence the decision was expected to delay effectually further extension of the tax exempt privileges.

As far as current plan filings is concerned, those being daily reported to the trade show no diminution in number. The public evidently begins to realize that where excessive demand over supply is maintained over a prolonged period, prices cannot go down. The speculative builder who has been mostly the chief beneficiary from the tax exemption

has been charged with responsibility for labor bonuses, preferred delivery payments, and so forth, which have raised building costs 25 per cent. since last December. Legitimate builders cannot compete with conditions like those and keep construction costs down and the trade at the week-end felt that if this was the way out of a situation that was inclined to grow rapidly worse, the quicker the tax burden of the city would be equalized, labor supply would be more evenly distributed and building costs would begin to stand still, if, indeed, they did not promptly decline.



SPLENDID BOOST FOR HOLLOW TILE

Hollow tile has received a splendid boost in the California Tourist and Hotel Reporter, a paper devoted to the hotel, resort and travel interests of the Pacific Coast. In an article by R. E. Lewis, the use of concrete for interior walls in hotels, apartment houses, schools, hospitals, and so forth, is disparaged because of concrete's qualities for conducting noises. Mr. Lewis says, "Concrete acts as a veritable sounding board or radio, 'broadcasting' noises to all parts of the house." He suggests as a remedy that buildings be equipped with hollow tile walls, which are good sound insulators as well as being excellent construction material.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

ENGLISH IMPROVING QUALITY OF WARE

By Special English Correspondent

WHILE BUSINESS in the pottery industry the past few weeks has been disappointing, judged from the comparative standpoint of anticipation, the fine display put up by the potters here at the British Industries Fair at White City indicates that big developments in pottery both for the home trade and for the export markets of the world are expected. More than 90 of the big pottery firms here displayed their products and gave the dealers a line on what may be expected this coming season. While fine china and earthenware houses kept aloof the high-grade decorative ware people were very much in evidence. More new shapes and patterns in utilitarian goods—dinner, tea, breakfast, coffee, toilet and kitchen wares, for which the demand now is—were seen than at any time since the war, or before it.

English Ware Improving

The Fair pottery display illustrated many useful things. It revealed the fact that a distinct technical improvement in body work, particularly in medium and cheap lines, has been made this year, while a marked advance in the artistic standard of shapes and patterns and tending towards design simplification, is apparent. British pottery lost its front rank position in the world from a technical standpoint during the war mainly due to inferior coal available, indifferent materials, and makeshift labor. That falling-away has been more than made good as the present pottery exhibits show.

The displays of Moorcraft pottery were of a very high class. The development in utility goods decoration is revealed in the exhibits of articles on which lustre colors have been applied in the form of free brushwork. This is shown particularly in the Persian style.

A definite advance, too, is noted in lithographed patterns under the mass-production method of decoration, but there still is room for improvement in the decorative treatment of nursery pottery ware if the attention and the interest of the children are to be opened up as sources of profit.

Wage Dispute Threatens

An innovation on the decorative side is revealed in the fine display of rich color vases mounted with hand-wrought silver work by expert metal workers. Metal-mounting of pottery is not exactly unique but the combination of the art metal craftsman and the art potter breaks fresh ground in England and offers much scope in the pottery industry.

Just now the potters are engaged in wage cut disputes that may seriously retard progress. The pottery workers

intend to resist the attempt of the potters to reduce wages still further. Even if these wages are reduced the pottery manufacturers say no further reduction in selling prices will follow. The Executive of the National Society of Pottery Workers says that unless a compromise can be reached the industry will experience prolonged resistance, so far as labor is concerned.

U. S. Takes 50% of English Clay Output

In the china clay industry foreign markets are expanding. Finland, Estonia, Norway, Sweden, Denmark and Spain are now good customers. Of the 740,000 tons of china clay produced during 1922 the home markets absorbed 236,518 tons. Last month 74,000 tons were shipped, the largest since 1914. It is believed 1923 will constitute a record. The U. S. A. generally takes more than half the total china clay production in England. Her last year's imports reached close to 300,000 tons. Her 1914 figures for china clay from England were 320,217 tons.

Reuter's Trade Service informs Staffordshire that the demand for English pottery in the United States is again slowly improving and that orders received lately from Montreal and Toronto houses indicate that the demand in the Dominion for English pottery ware also is reviving. Much favorable comment, says Reuter, has been heard in the trade recently in connection with a novel line of English porcelain whiteware just received by one of the American importing houses.

Refutes Profiteering Charge

Robert Shenton, chairman of the Pottery and Glass Trades Benevolent Institution and former vice-president of the British Pottery Manufacturers' Federation, says that the skilled pottery worker today is earning more money per hour than the miner, engineer or railwayman. Refuting charges of profiteering, Shenton produces some interesting figures on production costs in the average medium-class factory producing a fair amount of decorative pottery ware. Wages, fuel and body materials (clays) he says, absorb 65 per cent. of turnover, leaving 35 per cent. to cover raw materials, rent, rates, taxes, repairs, renewals, freights, carriage, selling costs, insurance, bad debts, salaries and profits.

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NORTHWESTERN TAKES OUT PERMIT IN W. VA.

The Northwestern Terra Cotta Co., of Chicago, Ill., was authorized to do business in West Virginia, by a certificate issued by Secretary of State, Houston G. Young. The certificate shows that the Northwestern Terra Cotta Co. has an authorized capital stock of \$2,500,000. It was incorporated by Wilfred M. Doherty, James A. McLaughlin and Vincent O'Brien, all of Chicago.

✻ ✻ ✻

PLANS TO OPEN SOON

Workmen are now being sought by the management of the Guernseyware China Co., of Cambridge, Ohio, which plant is now under new management. The company oper-

ating this shop prior to its disposal at receiver's sale several months ago was interested in the manufacture of a line of hotel cooking ware, but the new interests will make a line of hotel china. Jiggermen, turners and casters for the clay shops are now being solicited. The plant has large production possibilities, and it is believed that the clay shops will be operating full time within the next few weeks.

* * *

CROOKSVILLE ADDING NEW BUILDING

Work on the new addition of the Crooksville (Ohio) China Co. has been commenced and will be rushed to completion in about six weeks. The new addition is a two-story extension and will contain more than 5,000 square feet of floor space. The new addition is made necessary on account of the crowded condition of the decorating department. The offices will be moved to the new addition and the space which they now occupy will be used for decorating department purposes.

* * *

FRONTENAC ENLARGING PLANT

Frontenac Floor & Wall Tile Co., Kingston, Ont., is enlarging its plant to take care of the expanding business.

* * *

JOHN MORTON TO BUILD NEW PLANT

John Morton, for some years associated with the management of the Mosaic Tile Co., of Zanesville, Ohio, has resigned, effective April 1, for the purpose of devoting his time to the erection of a new tile plant to be built in the Zanesville district. A site of seven acres has been secured, and on part of this the new shop will be built. Construction of the new plant will begin soon, and it is proposed to have the shop on a production basis probably July 1. Between 100 and 200 people are expected to be given employment.

* * *

U. S. ENCAUSTIC BUYS STOKERS

The United States Encaustic Tile Co. is installing stokers which will cost approximately \$1,600, at its plant on West Sixteenth Street, Indianapolis, Ind.

* * *

NEW COMPANY IN FLORIDA

The Florida China Clay Co., Inc., was organized and incorporated the latter part of March at Leesburg, Fla., with a capital stock of \$100,000, and an authorized capital of \$500,000, it is said, to engage in the manufacture of clay products and the production of clay, principally for the making of chinaware and so forth. The plant of the company will be near Leesburg, where there are valuable deposits of this sort of clay that will be extensively developed. Officers of the company are R. L. Fox, president, of Leesburg, Fla.; J. S. Morris, vice-president, and R. B. Bourlay, secretary and treasurer.

* * *

CLAY MINING COMPANY FORMED

The Blue Ridge Clay Mining Corporation, Wilmington, Del., has been organized under state laws with a capital of \$300,000, to operate clay properties. The company is represented by the Corporation Service Co., Equitable Building, Wilmington.

* * *

MAKING \$80,000 ADDITION

The Trenton (N. J.) Potteries Co., manufacturer of sanitary ware, has taken out a building permit for the erection of two additions to its Equitable pottery at Lalor and Hancock Streets, consisting of a main four-story structure, and a large brick kiln shed. The extensions will cost approximately \$80,000. Work will be commenced at once and it is expected to have the structures ready for service at an early date.

KENTUCKY GETS TWO NEW COMPANIES

Two new companies have been established in the state during the past week, it is reported, articles of incorporation having been filed at Frankfort, Ky., for the Hickory Ball Clay Co., of Mayfield, Ky., capital \$50,000, A. C. Plumlee, G. W. Ligon and W. A. Ligon. The other company is the Hazard (Ky.) Brick Co., capital \$10,000, H. C. Powell, K. F. Stutz and J. W. Craft, incorporators.

* * *

DOUBLES CAPITAL STOCK

The American China Products Co. at Chesterton, Ind., has increased its capital stock from \$875,000 to \$1,750,000.

* * *

BUILDING CONTINUOUS TUNNEL KILN

The Beaver Falls (Pa.) Art Tile Co., is installing a second Dressler tunnel kiln for glost firing. It is being built under the supervision of the American Dressler Tunnel Kiln Co.'s engineers. The first kiln was built about five years ago. The company has retained Robertson-Pease Co., engineers to take charge of designing the new part of the plant and to purchase the various equipment and supplies required.

* * *

KINGSTON WANTS U. S. INDUSTRIES

The city of Kingston, Ontario, is anxious to obtain a few good industries and is prepared to assist any company desiring to locate there, by offering substantial inducements. Kingston is the headquarters for the feldspar mines which are located a few miles north of the city. Clay deposits are also located there and contain a good quantity of clay from which brick formerly were made.

* * *

SPONTANEOUS COMBUSTION OF COAL

Fine coal dust and moist air quickly increase the hazards of spontaneous combustion, according to Bulletin No. 3, reporting recent coal-mining investigations, and issued by Carnegie Institute of Technology, at Pittsburgh. Another conclusion set forth in the report is that the mixing of fresh coal and old coal does not develop any more heat than that due to the coals themselves when piled separately. This bulletin is one of a series of four that are now available for distribution, giving in full the findings of research work conducted under the joint auspices of the Carnegie Institute of Technology, the U. S. Bureau of Mines, and an Advisory Board of coal-mine operators and engineers.

* * *

GOOD DATA IN N. A. C. A. YEAR BOOK

The National Association of Cost Accountants, 130 W. 42nd Street, New York City, has just issued its 1922 year book, which is replete with practical information of great value to cost men, managers, industrial engineers, and public accountants. Following are some of the problems presented:

1. Should inventories be valued at actual cost or replacement cost?
2. Should material be charged at cost or market value?
3. How should selling and administrative costs be recorded and the high cost of distribution reduced?
4. How can standards of various kinds be established?
5. How should budgets be constructed and used?
6. How may costs be used by management in formulating and carrying out business policies?
7. How can the full cooperation of workers, employers and managers be secured thru a wider understanding of industrial facts as opposed to the misleading propaganda of radical interests?

These are just a few of the subjects which the book covers. Its price is \$3 a copy and it may be had by applying to the N. A. C. A.

UNIVERSITY OF ILLINOIS
LIBRARY

Current Prices of Common Building Brick, Six Inch Drain Tile and Hollow Building Tile

THERE have been comparatively few changes in the price of common brick since Brick and Clay Record last published a list of prices. The general trend is upward but the rise is not great and in only a few instances is it more than \$2 per thousand. The average price of the cities here listed in October, 1922, was \$18.08, whereas an average of the figures given below is only 32 cents more or \$18.40. This, of course, is not a weighted index but serves to show that brick prices have remained practically the same in the last five months. Out of the 19 cities reporting changes in common brick prices 15 have increased while four have decreased their prices.

In drain tile there were only seven changes reported, three of which were downward and four advanced. Des Moines showed the most notable change since October, reporting a price four cents lower than in that month.

Changes in hollow building tile prices are also not considerable, except in the case of Birmingham, Ala., where the price rose from \$115 in October, 1922, to \$202, which is the price quoted at present. The price trend in this commodity is slightly upward but not sufficient to influence building operations.

	Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M		Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M
Portland, Me. ....		.15		New Orleans, La.....	16.00	.12	
Boston, Mass.	28.00	.1862		El Paso, Tex.....	14.00	...	81.00
Providence R. I.	28.00	.20		Houston, Tex.	14.00	.16	84.00@
Hartford, Conn.	18.00	.14		Dallas, Tex.	10.90*	.19	75.00
New Haven, Conn.	25.00	.125		Little Rock, Ark.....	12.50*	.15	
New York City	24.00	...	123.00	Oklahoma City, Okla.....	14.75	.08	75.00
Albany, N. Y.	25.00	.155	200.00	Cincinnati, Ohio .....	...	.09	90.00
Utica, N. Y.	26.00	.0675		Cleveland, Ohio	16.00	.074	90.00
Syracuse, N. Y.	20.00	.125	135.00	Columbus, Ohio	18.50	.10	
Oswego, N. Y.	25.00	...		Toledo, Ohio	15.50	.09	90.00
Binghamton, N. Y.	24.00	.105		Detroit, Mich.	18.00	.12	90.00
Elmira, N. Y.	26.00	.10		Evansville, Ind.	15.00	.05	72.00
Rochester, N. Y.	18.75	.11		Fort Wayne, Ind.....	18.00	.07	80.00
Buffalo, N. Y.	18.00	.12	80.00	Indianapolis, Ind.	19.00	.10	86.75
Jamestown, N. Y.	25.00	...	110.00	South Bend, Ind.....	19.00	.08	100.00
Allenton, Pa.	20.00	...		Terre Haute, Ind.....	18.00	...	
Erie, Pa.	20.00	.095	90.00	Bloomington, Ill.	20.00	.08	75.00
Philadelphia, Pa.	17.00	...		Chicago, Ill.	12.00	.10	90.00
Reading, Pa. ....	...	.11		Moline, Ill.	18.00	.14	58.00
Pittsburgh, Pa.	16.00	.12	93.00	Peoria, Ill.	15.00	.11	58.00
Scranton, Pa.	25.00	.15		Green Bay, Wis.....	18.00	.076	85.00
Newark, N. J.	23.00	.1675	100.00	Milwaukee, Wis.	14.50	.09	92.50
Paterson, N. J.	22.00	.155		St. Paul, Minn.	16.00	.09	75.50
Trenton, N. J.	20.00	...		Davenport, Iowa .....	...	...	75.00
Wilmington, Del.	22.00	...		Des Moines, Iowa	17.00	.08	85.00
Washington, D. C.	19.00	.10	125.00	Sioux City, Iowa	16.50	...	80.00
Baltimore, Md.	19.00	.14		Kansas City, Mo. ....	...	...
Norfolk, Va.	18.00	.12	150.00	St. Louis, Mo.	14.00	.13	65.00
Richmond, Va.	16.00	.15		Lincoln, Neb.	16.50	.09	70.00
Huntington, W. Va.	15.00	.12	75.00	Denver, Colo.	12.00	...	85.50
Fairmont, W. Va.	24.00	.095	95.00	Butte, Mont.	15.00	...	15.00\$
Wheeling, W. Va.	23.00	.09	80.00	Los Angeles, Calif.	15.00*	.0975*	100.00\$
Atlanta, Ga.	12.35*	.14		San Diego, Calif.	14.00	.14	120.00
Miami, Fla.	25.00	...	140.00	San Francisco, Calif.	17.00	.065	108.00
Tampa, Fla. ....	...	...		Portland, Ore.	19.00	.10	95.00
St. Petersburg, Fla.	18.00	...	120.00	Seattle, Wash.	15.00	.12	95.00
Louisville, Ky.	20.00	.07	94.70	Cheyenne, Wyo.	18.50	...	
Lexington, Ky.	18.00	.12		Winnipeg, Man.	18.00	.15	105.00
Memphis, Tenn.	16.00	.09	110.00	Toronto, Ont.	18.00	.11	
Nashville, Tenn.	15.00	.11	86.80	Halifax, N. S.	21.50	...	
Birmingham, Ala.	18.00	.11	202.00	Quebec, P. Q.	18.75†	.11	

Editor's Note.—The prices of the commodities listed above are reported as delivered on the job, and are, therefore, higher than the plant prices. These prices are obtained from a sister publication, Building Supply News, and are sent to this paper by dealers in the various cities listed. Brick and Clay Record will appreciate any corrections.

*Little Rock, Los Angeles, Atlanta, Dallas, f. o. b. cars.

\$Los Angeles, Heath tile; Butte, per ton at yard.

@Hollow tile, Houston, car loads.

†Quebec, common brick, f. o. b. sheds.

Management and Superintendence

MONORAIL REDUCES COSTS CONSIDERABLY

A monorail conveyor with a large bucket is used very successfully by one plant, manufacturing refractories, to move the raw material from the wet pans to the molding tables.

These buckets and the monorail were designed to hold 1,000 pounds per load, but they are now hauling 1,500 to 1,800 pounds on the average.

The prepared material is unloaded by a scraper shovel into the bucket, at the level shown at the second pan near the left of the illustration. The bucket is then raised to the position shown in the foreground of the illustration. At this position it is on the monorail.

This plant has a capacity of 90,000 brick per day, and uses six pans operating 24 hours for full production. One man to each pan for each shift, or 12 men in all, move the raw material for this capacity to any desired spot on the hot floor, which has an area of 25,000 square feet. These men also have ample time to assist in the operation of the wet pans.



Bucket on Monorail Used to Move Raw Material from the Wet Pans to the Molding Table. The Buckets Haul from 1,500 to 1,800 Pounds in One Load.

PREVENTING CHAIN FAILURES

How can chains—especially sling chains—be kept from breaking? What are safe working loads? Is annealing a good thing and how should it be done? The answers to these three common industrial plant problems, the subjects of a recent study by the National Safety Council, are found in the following conclusions:

1. Before placing a chain in service, either the total length should be carefully measured or measured sections, say three feet in length, should be laid off with punch marks.
2. All chains should be given careful inspection regularly—daily, if in constant service—for cracks or other defects.
3. The length of the chain, or the distance between punch marks, should be checked periodically—at least once in six weeks if in constant service—and the chain should be discarded if it has stretched more than one-third of a link (for average-size chains) in three feet. The diameter of the metal at the ends of links should be checked to detect excessive wear.
4. Provided these precautions are taken, periodic annealing is of some value as an additional safeguard. There is no recognized standard method of annealing chains, and the desirable temperature may vary according to the kind of chain.

5. Other important points in connection with the safety of crane slings were noted as follows: Rings and hooks must be of sufficient size and strength; the hook must not be loaded on the point; sudden jerks should be avoided; load should be hooked onto in a manner not involving unnecessary strain on the chains; too great an angle between the two parts of a double sling should be avoided.

Accidents due to chain failures are much more frequent than they should be. Observance of the above mentioned rule will reduce them considerably.



USES TRACTOR TO DISTRIBUTE COAL

An interesting piece of equipment in use at the plant of the Jewettville Clay Products Co., Buffalo, N. Y., is

a gasoline engine tractor, which is used for hauling coal to the kilns and for other odd jobs. As shown in the illustrations, the tractor is of more or less ordinary type, the cart for carrying the coal is coupled to the rear.

On this same photograph is shown a coal unloader which is a home-made equipment that works very efficiently. An ordinary flight conveyor takes the coal from bottom dump cars to a hopper, from where it is thrown onto a chute, which drops the coal directly into cars. The cars are run to the base of the chute on track with an electric transfer car.

This Gasoline Tractor Hauls Coal to the Kilns at the Jewettville Clay Products Co., Buffalo, N. Y.

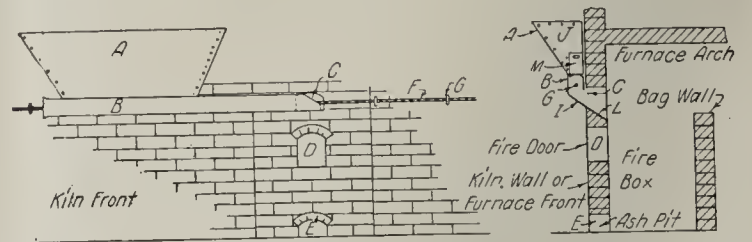
AUTOMATIC KILN FIREBOX

A mechanical system for feeding coal to a kiln firebox has been developed by P. J. Laubscher, of Fredericksburg, Ohio, as shown in the attached elevation and section. It is worked on the principle of feeding a small quantity of coal continuously instead of feeding large quantities at stated intervals. The hopper A is placed somewhat toward the side of the firebox. B is a square or round tube thru which the endless cable F travels. This cable carries flights marked G, which are spaced to suit the speed of the delivery required, and which carry the slack coal from the bin to the spillboard I and discharge it into the firebox thru the opening C. M is a gate controlling the amount of slack coal which each flight takes out of the hopper A. J is an end view of hopper A.

It is very easy to provide mechanical means for propelling the cable back and forth, whether for continuous, up-draft

or down-draft kilns, and the latter can be square or round.

Mr. Laubscher says that this firebox has saved one-half of the coal, has eliminated the smoke entirely, produces no clinkers, has shortened the burn by several days, and has



Sketch Showing Operating Parts of Automatic Kiln Firebox. The Letters Refer to the Description in the Text.

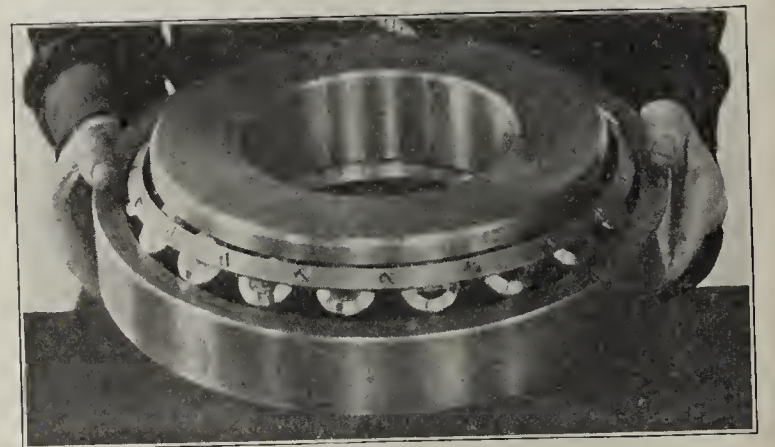
done away with burnt-up tops, soft bottoms and cracked ware. This system does not cost much to install and is being patented. The upkeep cost is small and it can easily be transferred to another kiln.

At the start of the water-smoking period, Mr. Laubscher mixes some sawdust to keep the fires burning bright when the draft is poor.

TIMKEN EQUIPMENT PROVES GREAT SUCCESS

Lubrication of the thrust bearing of auger machines and the step bearing of dry pans has always been a source of constant care for operators of clay plant machinery, due to the heavy loads placed on these parts.

A big step, however, toward eliminating these difficulties has been made in the dry pans and auger machines furnished



Successful Roller Bearings for Auger Machines and Pans.

by the Bonnot Co. The well known standard and successful Timken tapered roller thrust bearing of a design similar to those found in the automotive industry is being used.

The Stark Brick Co., of Canton, Ohio, has this new type of bearing on both brick machine and ten foot dry pan.

**IN EVERY
BRANCH
of
CLAY
PRODUCTS
MANUFACTURE
STEVENSON'S
EQUIPMENT
CUTS THE
COSTS**

THE STEVENSON CO.
Wellsville, Ohio
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Dry Pans
Wet Pans
Roll Crushers
Sewer Pipe
Presses
Sewer Pipe
Turners
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Feeders
Pan Feeders
Bucket
Elevators
Gravity
Elevators
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Tile Barrows
Sewer-Pipe
Barrows
Gigs,
Etc.

STEVENSON

**HIGH GRADE
CLAYS**
OF EVERY KIND—FOR EVERY PURPOSE
UNITED CLAY MINES CORPORATION, TRENTON, N. J.

Their opinion is:

"Judging from the small wear we notice there, its life will be long. Its distinguishing features may be summed up briefly as follows: the small oil consumption as compared to the old kind, the little attention they require as to oiling and also the saving of power.

"We have no way to measure accurately the saving of power as it is steam driven, but would say, conservatively, that it saves at least 30 per cent. Our engineers say it is 50 per cent. Neither bearing has heated up a minute. From the good features we notice we do not hesitate highly to recommend their use as the latest and most scientific improvement on brick machinery that has recently been made."

These bearings are backed by a three year guarantee which insures the purchaser of uninterrupted operation during that period.

✱ ✱ ✱

DUST FROM BATS USED IN BRICK MOLDS

H. Garber Brick Works, Olive, Cal., obtain sand for their brick molds from their broken ware. This ware is crushed by a rock crusher to a size which makes it usable as a roofing gravel, an idea which has been described in Brick and Clay Record. The dust which results from this crushing is used in the brick molds.

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INSTALLS \$20,000 DRYER

H. W. Shields, director of the Southern Pacific Brick & Tile Co., reports the installation of a \$20,000 dryer addition to its plant at Exeter, Cal. Brick shortage has been acute there this winter, so the company is preparing to operate the year round. With this improvement in equipment, the plant will be able to produce 15,000,000 brick and 1,000,000 building tile per year. Three carloads of dryer cars and equipment have been received. The dryer itself is constructed of tile and concrete, and is permanently installed. It consists of 12 tunnels 120 feet long, three ft. wide, and five feet high. Two multivane fans are used, one with bottom discharge to draw hot air from heated kilns thru the fan and to discharge it into a main underground heat duct. From this main heat duct, smaller ducts run under each tunnel. A cross duct connected with another fan of equal capacity draws off damp air. The temperature at the receiving end of the tunnels is about 125; at the discharge end, about 250. 220 all-steel double-decked cars are used, with a capacity of 650 brick each. 24 hours are required for tunnel drying.

The whole plant is electrically equipped. The company was established in 1907 and in 1922 was incorporated for \$250,000. The directors are H. W. Shields, Fresno; L. E. Hayes, Exeter; and W. D. Trewitt, Hanford.

✱ ✱ ✱

N. Y. HOME SHOW APRIL 21-28

"There are at least 1,000,000 families in the United States who could easily own their homes, but they do not know just how to go about it," says a bulletin of the New York Own Your Home Exposition. This exposition which is to be held April 21 to 28, is planned primarily to help such people. To further this aim, an interesting and instructive series of practical articles on home building has been prepared under the title, "Owning Our Home, by Bob and Betty." This is a guide to home building written in narrative form and answers 500 practical questions which a prospective home owner should consider. This year's Own Your Home Exposition, which is under the auspices of the real estate boards of the Metropolitan district, promises to be a complete exposition of all things interesting to the man who wants to build his own home.

THE Ironton

STORAGE BATTERY LOCOMOTIVE

West Virginia Says 80%

In West Virginia, 80% of all storage battery locomotives in use today are Irontons! This must be conclusive proof that the Ironton Storage Battery Locomotive gives more efficient, more economical hauling power. This must be proof that your money is invested most advantageously in an Ironton Locomotive. Quality—service—satisfaction—why not for you, too?

The Ironton Engine Company, Ironton, Ohio

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Branch Offices:
816 Robson Prichard Bldg.,
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511 Widener Bldg.,
Philadelphia, Pa.

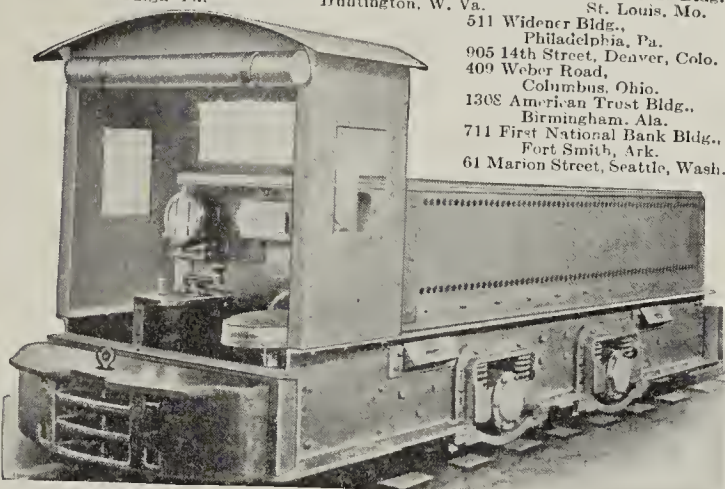
905 14th Street, Denver, Colo.

409 Weber Road,
Columbus, Ohio.

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Birmingham, Ala.

711 First National Bank Bldg.,
Fort Smith, Ark.

61 Marion Street, Seattle, Wash.



Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

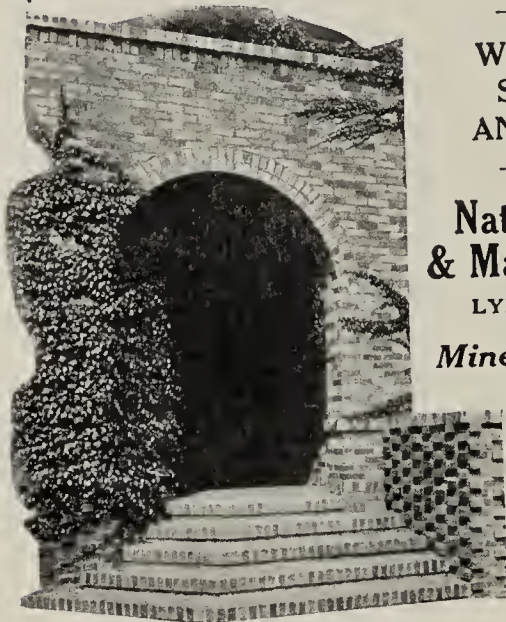
Sales Offices in Principal Cities

Competition Is Keen

To meet it, quality production of face brick is necessary. Manufacturers everywhere are getting remarkable shades and colors in their products by using

NATIONAL MANGANESE

"The Standard for Twenty Years"



WRITE FOR
SAMPLES
AND PRICES

**National Paint
& Manganese Co.**

LYNCHBURG, VA.

Miners & Grinders

For More
Than A
Quarter
Century

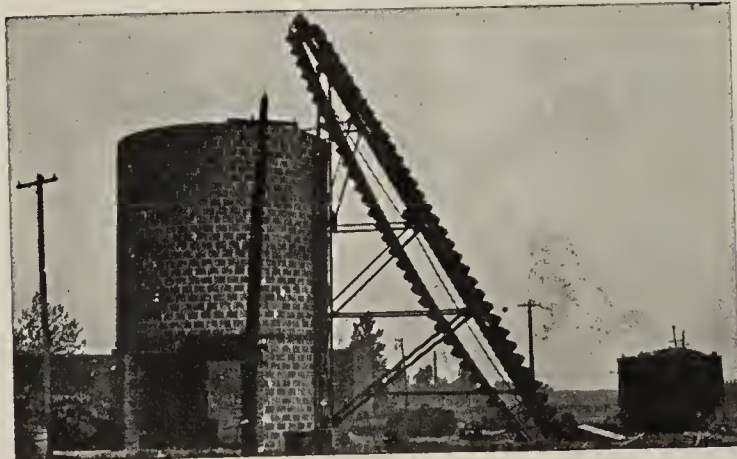
SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



The Letter Box

**A Place Wherein Letters
That Have General In-
terest Are Published
and Commented Upon**

REGARDING THE DRYER OVER THE KILN

The article entitled "Building the Dryer Over the Kiln" written by Alexis A. Zakharoff, and published in the March 6 issue of Brick and Clay Record, has elicited the following comment from T. W. Garve of Brazil, Ind.:

"With reference to Mr. Zakharoff's article, 'Building the Dryer Over the Kiln,' in your March 6 issue, and especially referring to the sentence, 'The subject has hardly been touched upon in technical literature,' we wish to call your attention to an article the writer has written after a careful study of this subject abroad. It can be found in Mr. Lovejoy's book, 'Drying Clay Wares,' where credit is given. It consists of 18 pages with six photos and ten drawings. It gives a calculation as to the efficiency of the system, describes this method of drying abroad as well as in this country, and winds up with the advantages and disadvantages of the system.

"It is merely in the interest of the clay products manufacturer seeking information, that we are calling your attention to this."

✕ ✕ ✕

SAYS CLAY MEN WILL TURN TO DEALER

The article in the March 20 issue of Brick and Clay Record, carrying the startling facts of clay products distribution thru the dealer has aroused tremendous interest thruout the clay industry. The feeling is prevalent that possibly those manufacturers who do not use the dealer are overlooking a good possibility to increase their sales. A letter which bears out the above contention was received from a reader of Brick and Clay Record in Cleveland, who has the following to say:

"Gentlemen:

"The article in your March 20 issue entitled, 'What Can the Dealer Do for You?' is, in my opinion, one of the most important things that has ever appeared in your journal.

"While I am not a manufacturer of clay products, I have been in rather close contact with both manufacturers and dealers for several years, and it has always struck me as peculiar when observing the lack of interest on the part of manufacturers of clay products in regard to the sale of their products.

"I know of dozens of face brick manufacturers making as high as 30,000 brick a day, who are firmly convinced that they will always sell their entire output as long as they are in business, simply because they have always done so in the past.

"And the majority of these manufacturers are seemingly satisfied. They will not trouble themselves to increase the capacity of their plants, reduce their overhead and the price of their product and at the same time increase their net profit. Few of them even realize the possibility of some new company building a plant in their territory and entering into competition with them, and, with a new plant modernly equipped with labor-saving devices, underselling the established manufacturer.

"Your article clearly, and in no uncertain terms, sets forth a true reflection of the conditions. It tells of an army of established dealers now engaged in selling practically everything that goes into a building, ready to add building brick to their lines, but not being informed or even solicited except by a very few manufacturers.

"Only a few years ago prepared roofing was an unknown quantity—now it is stocked by the majority of dealers all over the country. Other building materials have been invented and today are being sold by dealers as staple lines. But in every case the manufacturers sought out the dealers, offered them every possible help in learning about the product and furnished printed matter by the ton.

"How many brick manufacturers have any printed matter showing the various textures and colors of their brick? Very few. They depend on samples, and even then most of them do not lay them up in panels. And then they wonder why a dealer does not sell more than one or two cars a year.

"One of the largest manufacturers of face brick in the country has established selling offices in cities thruout the middle and eastern sections. They believe the small-town dealer is too ignorant to sell face brick. And yet the total amount of face brick sold in small towns would easily equal or exceed the total of their sales in cities and would considerably reduce their selling expense.

"But the tide has turned. Dozens of new plants have been built in the last two years and many more will be built in the next two. Many plants producing tile and paving brick are being changed over to produce face brick. And no doubt the majority of these producers will seek—and find—building supply dealers ready to sell their output.

"The manufacturer who, so far, has depended on the big city jobber to take his entire output, will find the jobber buying from a plant that offers a lower price. He will then endeavor to line up dealers, only to find that the live dealers have already made their connections with producers who "favor dealer distribution" and who have sufficient interest in the dealer to help him increase sales by supplying panels or printed reproductions of their brick.

"The handwriting is on the wall—and your article points to the wall in a manner that is significant of the times and also of your progressive thought. The question is—will the manufacturer see it?"

Sincerely yours,

M. E. G.

Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

WHAT IS A FAIR ROYALTY FOR CLAY?

1,061. Virginia—We have an opportunity to obtain some clay near our plant; however, the party wants to settle same at so much per thousand brick manufactured. We manufacture common building brick. Will you advise us the usual amount paid per thousand royalty on the clay in manufacturing common brick? In this way we only get the clay and do not have to buy the entire piece of land.

The above question was published in a recent issue of Brick and Clay Record with a request that readers send in their experiences and tell of practices which are considered good and sound business. Two very excellent suggestions have been received and are published herewith.

H. C. Moeller, of the Moeller Engineering and Construction Co., of Malvern, Ark., has sent in the following information:

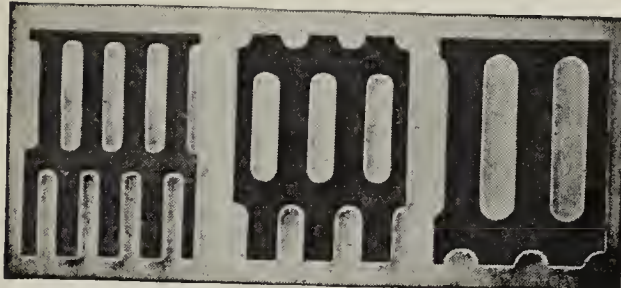
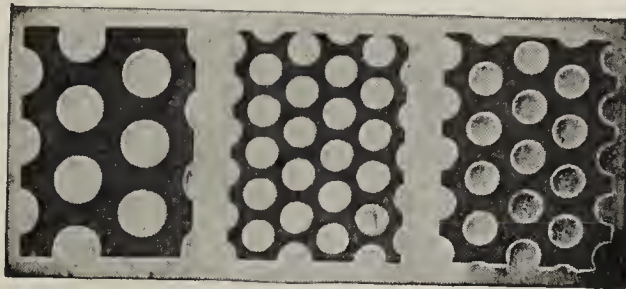
"Just what could be considered a fair price for clay all depends on how much it costs to get it to the mill, for example; if the clay is from 1,000 to 5,000 feet or more from the plant \$100 per acre is a fair price for clay with an average depth of eight to ten feet, taking in consideration the fact that some clays weigh much more to the yard than others. The tonnage plan is usually expensive for the buyer. The best way to buy clay is by the yard in the bank. One acre of clay three feet deep contains 4,840 yards, allowing 1 3/4 yards per thousand standard brick. This will make 2,450,000. Good quality face brick shale is being loaded on cars for \$0.25 a ton. As a rule eight to ten cents per yard is a fair price for clay. I have sold a great many yards of high-grade shale for five cents a yard from a 40 foot bank."

G. C. Stoll, of Los Angeles, Cal., has volunteered the following information regarding a fair royalty for clay:

"The royalty might be considered to be worth more if the clay land was in close proximity to a large city.

"However, to arrive at an equitable basis, it is necessary to estimate the amount of clay in an acre. Since there are

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shakes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

CAUCASIAN OXIDE MANGANESE

Powdered—Granular
For Speckled Effects

PRECIPITATE CARBONATE BARIUM

For Prevention of Scum
Thereby Producing
Deeper and Richer
Color

**THE
ROESSLER & HASSLACHER
CHEMICAL CO.**

New York

Chicago
Boston
Philadelphia

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New Orleans
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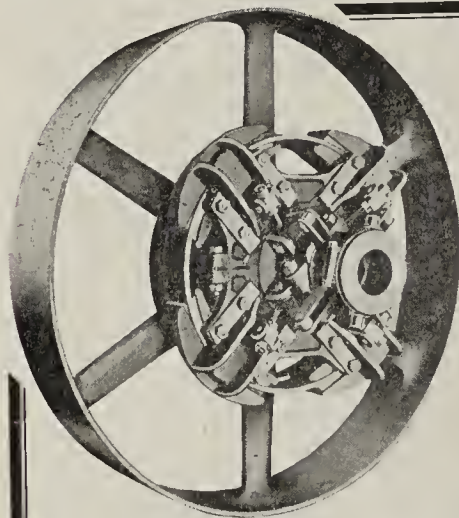
Kansas City
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PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO



Demand Nothing Less!

For unequalled mechanical stability, tremendous starting power, ease of adjustment and removable wearing parts, the Smith type Hilrob Friction Clutch is in a class alone. For decades these clutches have been the choice of the engineer who knows "what's what" in clutches. Play safe! Demand nothing less!

HILROB Friction Clutches

have always set the standard of gruelling service. Their operating principle is correct. Tests over many years have proved their superiority of disc, hub or other type of clutch. Our experience with Hilrob Friction Clutches on a great many jobs is interesting to any man interested in power transmission machinery. Let us tell you all the whys and wherefores. It will pay you well. Address

Robbins Machinery & Supply Co.
444 W. Grand Ave. Chicago, U. S. A.

"Machinery for Moving Merchandise"



43,560 sq. ft. in one acre; one foot deep would be 43,560 cu. ft.; one cu. ft. of clay will weigh 100 pounds which is 4,356,000 pounds of clay one foot deep over one acre or 2,178 tons. Presuming that the clay bank is 15 feet deep, there will be 32,670 tons of clay per acre.

"At six cents per ton, the acre of land would bring \$1,960.20. Or at eight cents per ton, the acre of land would bring \$2,613.60.

"A thousand standard size common brick weighing five pounds each require 2½ tons of clay and at six cents per ton the clay would cost 15 cents per 1,000 brick. Or at eight cents per ton, the clay would cost 20 cents per 1,000. Consequently, it is the writer's opinion that in close proximity to a small city six cents per ton would be a fair royalty, or for a large city eight cents per ton. If there is more than 15 feet depth of clay available, the price per acre would be enhanced in proportion."

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LAMINATION CAUSING SERIOUS TROUBLE

1,062. *Maine—We are troubled seriously with lamination of our brick.*

Our material is an easy working gray clay with plenty of fine sand; burns red.

It is hard to give you the best advice on lamination of brick since the information that you gave us was rather meager. Lamination is caused by one part of the clay flowing faster than the other. There are two kinds of lamination; one caused by the auger which usually appears in an oval shape on the brick. This is frequently caused by the auger being too close to the face of the die. In other words, the central part of the brick travels too fast for the outside. In many cases, this type of lamination can be reduced by placing a ring between the machine and die so that the face of the die is at a greater distance from the end of the auger. Some of the plants improve this condition by placing a bridge similar to that used in the manufacture of hollow tile, in front of the auger so that the flow of clay in the center of the brick can be retarded.

Die lamination is usually caused by too great friction on the inside surfaces of the die.

Probably, there is not sufficient lubrication in the die for your clay. A die which works perfectly for one type of clay often does not work satisfactorily with another. Steam or oil lubricating dies are generally better than those lubricated with water or which have no lubrication. Another cause of die lamination is sometimes found in the angle at which the die is built. Too much angle creates friction and, therefore, causes lamination.

If some of these suggestions do not improve your condition, you might try adding grog or crushed burned brick. You state that you have a fine sand. This might increase your lamination. In other words, there may be a tendency for the sand to act as round balls thereby causing one layer of the clay to slide or roll on the other.

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LEASES KNOB KNOTTER PLANT

Frank C. Nicholson of Kansas City, who is head of the Harrisonville (Mo.) Brick & Tile Co., has leased a small brick plant at Knob Knoster, Mo., and will operate it in the future. About 25 men are employed at present and this force is to be increased as improvements are made. New belts, new elevators and a new boiler will be added to the equipment at once, and one or two new kilns for burning both face brick and fire brick will be erected in the near future. He announced that other needed improvements around the plant will be made from time to time and as the increase in the output of the factory demands it. J. W. Jenkins, who has managed plants for Mr. Nicholson before, will be in charge as manager of the Knob Knoster plant.

The Digger

for the average sized plants

The machine that digs, loads and mixes enough clay, for a capacity of 25,000 to 100,000 per day at an average cost of \$8.00 per 10 hours. An excellent machine for stripping. Saves enough over hand labor to more than pay for itself in a short time, besides improving your ware thru a better mix. Caterpillar or track mounting, gasoline or electric power.

In many instances it has displaced 12 men and is costing less for operation than the wages of three of them. The price with caterpillars is less than \$3,000

Even the very small plants can afford and ought to have the BAY CITY.

You will need a digger this year.



THE BAY CITY DREDGE WORKS
Bay City, Mich.



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

Always Good~

Now

Better

than

Ever

Another

FEDERAL

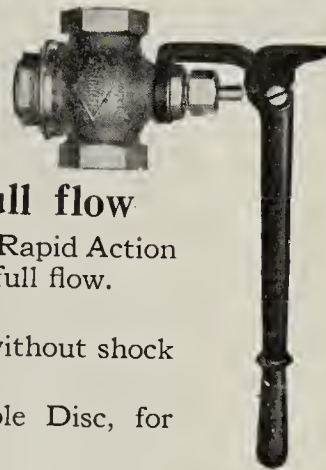
"Means Another Satisfied User"

Made for maximum service
not merely the average

TRADE
JENKINS
MARK

Jenkins Bros

Fig. 720, Jenkins
Bronze Rapid
Action Valve.



An instantaneous full flow

One pull of lever and a Jenkins Rapid Action Valve gives an instantaneous, full flow. It stays open automatically.

Closed by slight pull of lever without shock or water hammer.

Fitted with Jenkins Renewable Disc, for hot or cold water.

Valve is made of bronze with malleable iron lever, enamelled green.

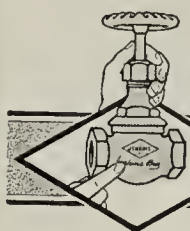
This valve not only saves time, but stops water waste. For use on lines and at places where a full volume of water is required quickly and often.

Send to nearest office for descriptive folder.

JENKINS BROS.

80 White St. New York
133 N. 7th St. Philadelphia
524 Atlantic Ave. Boston
646 Washington Blvd. Chicago

Always marked with the "Diamond"



Jenkins Valves

SINCE 1864

Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

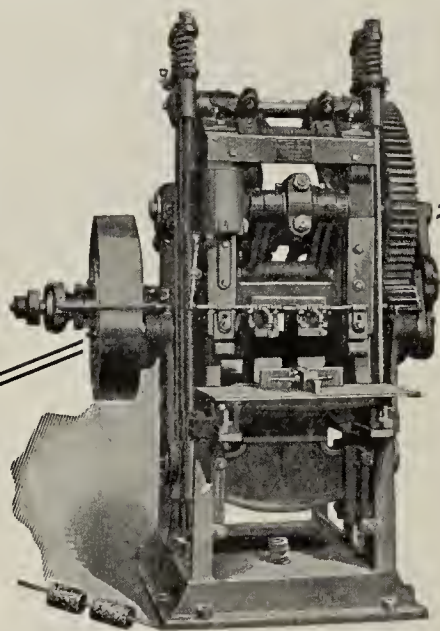
Bullitt Building

Philadelphia, Pa.

Grinding Plant: Plymouth Meeting, Pa.



Page 237



We Repress Gloninger's Face Brick

In his new up-to-date plant, Mr. Gloninger has installed three "Richardson" Represses, for making his "waterproof" face brick. As he had used this make of repress many years, the above fact is sufficient commentary on his experience with them.

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Off

918 Behan St., N. S.

PITTSBURGH, PA.

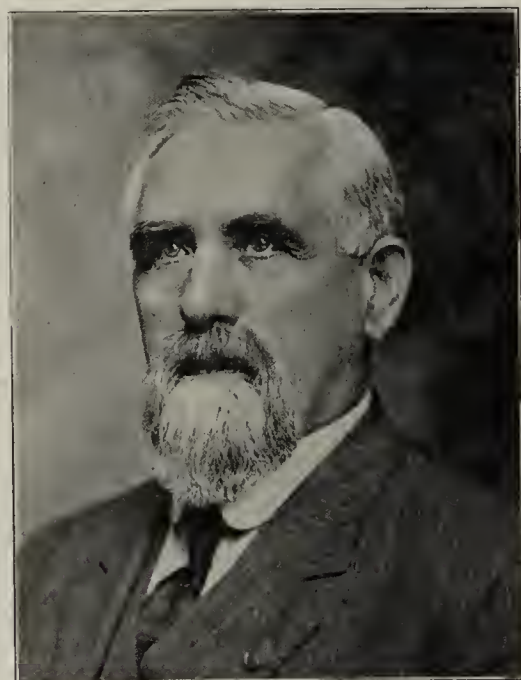
Drawn from the Kilns

Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing

JOHN RINGLE DIES OF HEART FAILURE

John Ringle, Sr., head of the Ringle Brick Co., of Wausau, Wis., formerly president of the Wisconsin Clay Manufacturers' Association, died suddenly of heart failure in his home in that city, March 15. Mr. Ringle had for some time been suffering from weakness and only recently had returned from Waukesha health resorts where he had been taking mud baths.

During his lifetime Mr. Ringle served as mayor and held other public offices at Wausau. He was born October 2,



JOHN RINGLE

1848, at Herman, Dodge County, Wis., and came to Wausau with his parents while young. He held offices in city, county and state governments, serving in the state legislature and also as postmaster under President Grover Cleveland.

In business circles of Wausau Mr. Ringle was very prominent. In addition to being president of the Ringle Brick Co., he was also president of the First National Bank and associated in several other commercial and industrial enterprises of that locality. In fraternal circles he was prominent in the Masonic and Odd Fellows orders. He was also active in the Evangelical church.

WM. HODKINSON PASSES AWAY

Old timers in the brick industry will regret to learn of the death of Wm. Hodkinson of the Hodkinson Brick Co., Chadron, Nebr. He was actively engaged as a brick manufacturer for 20 years and in that time contracted a host of friendships.

L. U. NICKELL MADE CLUB PRESIDENT

L. U. Nickell, president and general manager of the Fulton (Mo.) Fire Brick Co., has just been elected president of the

"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of the Columbia Brick Works, Portland, Oregon, in regard to their

MARION "RUST SPECIAL" Feeder and Mixer

Read his letter:

"We have been using the Rust Feeder for some time. We find that it gives us a better mixture of clay and a more uniform feed into the crusher, and has proved entirely satisfactory for our requirements."

Write for catalog describing the full line of MARION Clay Plant Equipment. No obligation to buy, but money in your pocket if you do.

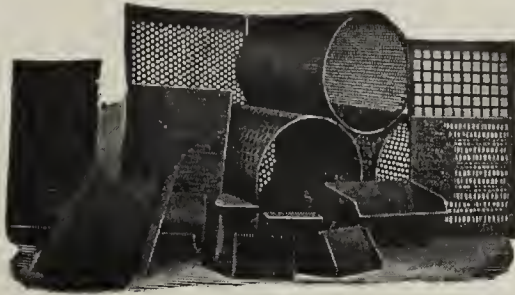
Marion Machine Foundry & Supply Co.

P. O. Box 395

MARION, INDIANA



HENDRICK SCREENS FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

Ask for your copy of the
Perforated Metal Handbook

HENDRICK MFG. COMPANY
CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Trust Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

SIL-O-CEL

PREVENTS HEAT PENETRATION

TRADE MARK REGISTERED U.S. PATENT OFFICE

A CELITE PRODUCT

Kiln Insulation

HEAT lost through walls and settings of un-insulated kilns increases production costs



- 1—by causing an excessive consumption of fuel;
- 2—by making it difficult to get high temperatures and hold them evenly;
- 3—by causing imperfectly burned ware, due to uneven temperatures.

SIL-O-CEL Insulation reduces production costs

- 1—by preventing heat waste, thus lowering your consumption of fuel;
- 2—by holding a uniform temperature within the kiln and so reducing the number of rejects;
- 3—by protecting the outer walls of the kilns from temperature strains, prolonging their life and saving repair bills.

Complete information on Sil-O-Cel Kiln Insulation gladly sent upon request. Write nearest office for Bulletin B-5A.

CELITE PRODUCTS COMPANY

New York 11 Broadway Chicago 53 W. Jackson Blvd. San Francisco Monadnock Bldg.
Offices and Warehouses in Principal Cities
CELITE PRODUCTS LIMITED, New Birks Bldg., Montreal, Canada

DIESEL ENGINES FOR CLAY PLANTS

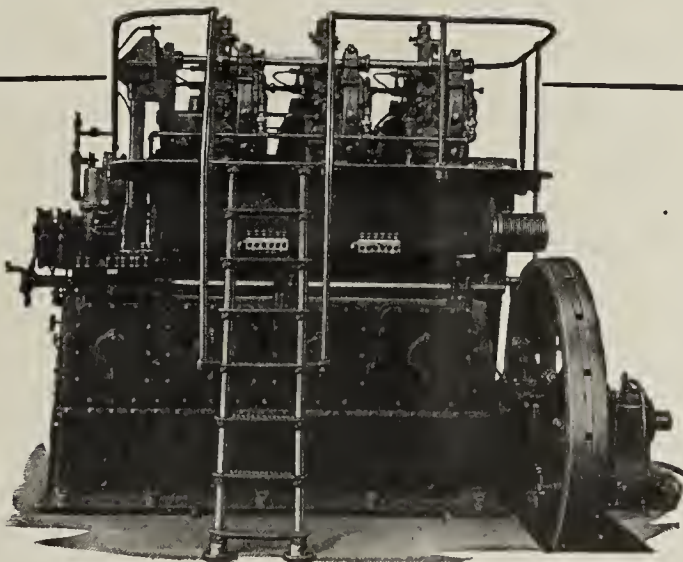
Economical Power—Efficient Operation—Convenient—Conservative—Complete—Easy to care for—Always ready and reliable.

This engine operates on cheap fuel oil. Fuel storage space decreased. A small amount of fuel makes a big amount of power.

Send for new catalog, either vertical or horizontal types furnished.

THE HADFIELD-PENFIELD STEEL COMPANY
Bucyrus Ohio

Formerly the American Clay Machy. Co.





TRADE MARK REGISTERED U.S. PAT. OFFICE
JUNE 21st, 1910

■ VEELOS ■ GENUINE BALATA BELTING

Specially designed and constructed for hard, rough, moist, wet or dry work, such as is encountered in stone quarries, sand and gravel pits, brick and clay plants, and copper, gold, zinc, and other mines. Ideal for all kinds of rough, gritty, dirty, hard work, whether under wet or dry conditions.

CONVEYOR—ELEVATOR TRANSMISSION

Write for Booklet and Samples

MANHEIM MFG. & BELTING CO.
MANHEIM, PA.

USE THE CLASSIFIED COLUMNS

Have you a plant for sale?
Will you sell some old machinery?
Do you need an executive?
Are you looking for a position?
Can you use More Capital?
Do you want some used equipment?

**RESULTS ON ALL OF THESE POINTS
WILL SURPRISE YOU**

Address

Brick and Clay Record
407 S. Dearborn Street
Chicago, Ill.

Fulton Commercial Club for the second time, having served in that capacity in 1921 with much success.

W. D. BRICKELL BACK IN COLUMBUS

W. D. Brickell, president and treasurer of the Ironclay Brick Co., of Columbus, has returned to his home in Columbus after undergoing another operation at a Cleveland hospital. He is recovering after an illness of more than a year.

ROBERTSON AND PEASE, CLAY PLANT ENGINEERS

H. M. Robertson and Chas. M. Pease, both formerly of American Dresser Tunnel Kilns, Inc., announce the opening of their office at 705 Century Building, Cleveland, Ohio. These two men have joined forces and have formed the Robertson-Pease Co., Designing and Constructing Engineers. Both have had considerable experience in the clay industry.

G. H. EMERY CHANGES POSITION

George Hyde Emery has accepted a position as sales manager for the Pacific Clay Products Co., Los Angeles, Cal. Mr. Emery was formerly with N. Clark & Sons, San Francisco, Cal., as sales manager. Previous to going to the Pacific Coast he was Omaha manager for the Hydraulic-Press Brick Co. His first position on the coast was with the California Brick Co., of San Francisco.

W. J. MASSEY HEAD OF CEMENT COMPANY

W. Jordan Massey, a well-known brick manufacturer of the South for many years, and president of the Bibb Brick Co., of Macon, Ga., was named president of the Southeastern Portland Cement Co., formed the latter part of March at Macon, with a capital of \$3,000,000. Mr. Massey will continue to give his principal attention to his brick business, but will be actively interested in the new enterprise as its executive head.

MAYHUGH WON'T REBUILD PLANT

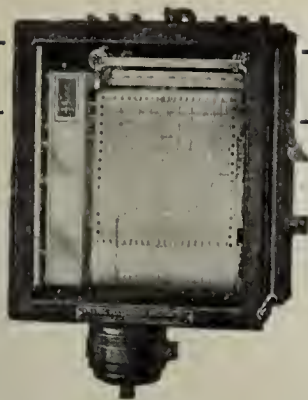
C. B. Mayhugh, formerly president and general manager of the Star Brick & Tile Co., Bay View, Wash., has decided not to rebuild his plant which was destroyed by fire a short time ago. Mr. Mayhugh stopped in the offices of Brick and Clay Record on his return to Demos, Ohio. He expects to remain there until such time when he may make a connection, perhaps, as superintendent of some brick plant requiring a practical brick manufacturer.

BEG YOUR PARDON

In an item in the March 6 issue of Brick and Clay Record, it was stated that J. H. Payne of the Fraser Brick Co., Dallas, Tex., had again been made chairman of the Advertising Committee of the Hollow Building Tile Association. This statement was in error; altho Mr. Payne is still serving on the Advertising Committee he is no longer chairman, this office being filled by V. L. Yepsen of the Anness & Potter Fire Clay Co., Woodbridge, N. J.

C. L. GARD GOES TO ARKANSAS

C. L. Gard, who has been general superintendent of the Harrisonville (Mo.) Brick & Tile Plant for the past two years and who has been in the employ of the Nicholsons, of Kansas City, owners of the Harrisonville factory for the last 20 years, has resigned his position to accept the general superintendency of the Arkansas Brick & Tile Co. at Little Rock, Ark. Mr. Gard went to Harrisonville two years ago to take the "kinks" out of the plant and was eminently successful. He will be succeeded at the Harrisonville plant by W. B. Hargrave, who has been there several months.



Heat Controlled *means* Money Saved

KILN temperatures that rise too fast or too slow or do not reach the proper degree mean waste of time, fuel, and labor, as well as a waste of ware.

BRISTOL'S PYROMETERS

enable your fireman to control heat temperatures up to 3000° F. at all times.

They accurately indicate and record, and are absolutely reliable.

Ask for our 68-page catalog AE-1401.

—THE BRISTOL COMPANY—
WATERBURY, CONNECTICUT

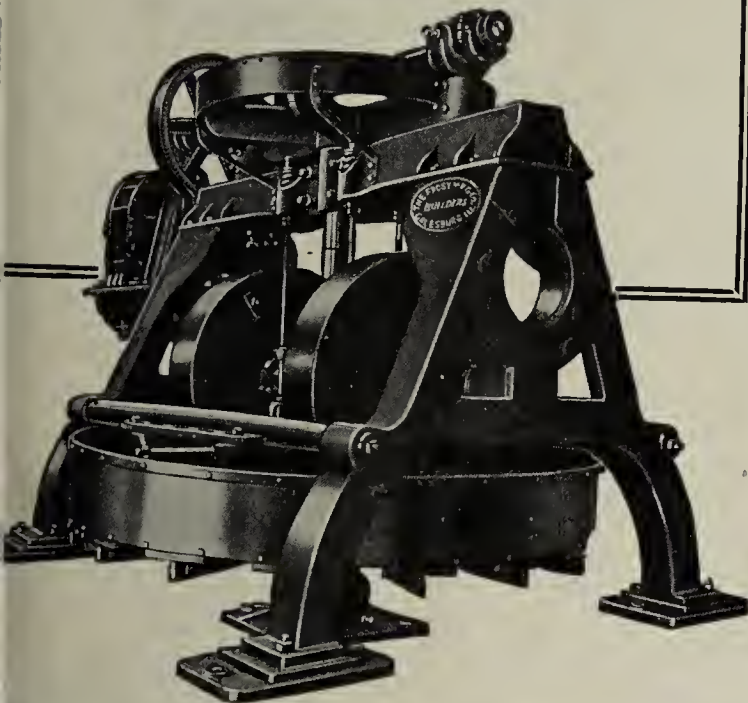
BRISTOL'S

INDICATING RECORDING PYROMETERS

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

ROBERTSON-PEASE CO.

CENTURY BUILDING

CLEVELAND, OHIO.

ENGINEERS

A New Method of Kiln Insulation

Recuperates heat now lost
in cooling.

Shortens firing cycle.

Inexpensive and quickly
applied.

Does not add any weight
to crown nor alter present
construction.

Installation pays for itself
in short time.



ENGINEERS

ROBERTSON-PEASE CO.

CENTURY BUILDING

CLEVELAND, OHIO.



The Connecting Link—

To greater efficiency in any sliphouse
between blunger and filter press is the

MUELLER PUMP

Mechanically correct in construction, never-
failing in operation, and daily performing in
many potteries, both large and small through-
out the country, this pump can help you in-
crease *Your* production.

We will gladly tell you how. Write to-day

THE MUELLER MACHINE CO.

(Incorporated)

TRENTON 23 Ward Ave. NEW JERSEY

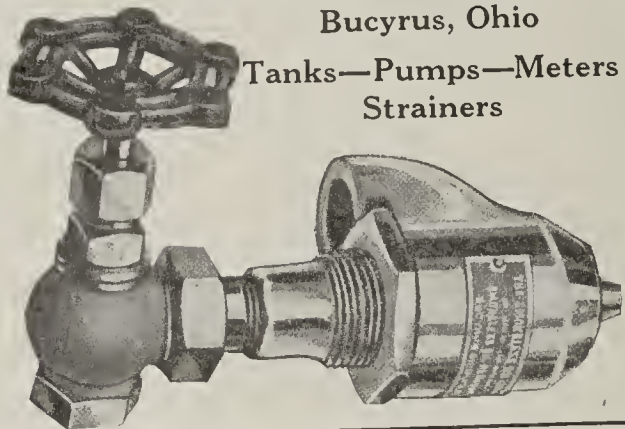
YOUR WARE CAN BE BURNED— CHEAPER and BETTER by the use of oil

Oil is the cheap and convenient fuel. Easy to obtain, easy to handle. It will not only give you quality burns, but will lower production costs. Burn with oil.

Let our Engineers give you some real helpful suggestions on oil burning. No obligation.

The Smokeless Oil Burner Co.

Bucyrus, Ohio



Tanks—Pumps—Meters
Strainers

In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

✦ ✦ ✦

BURKE ELECTRIC CO.

MAIN OFFICE AND WORKS
ERIE PENNSYLVANIA

Service-Sales Offices

NEW YORK
PITTSBURGH

CLEVELAND
DETROIT

PHILADELPHIA
BUFFALO

Sales Agencies

CINCINNATI: UNDERWOOD ELECTRIC CO.
KANSAS CITY: W. T. OSBORN

WANTS TO BUY NEW SCREEN

Choctaw Brick & Gas Co., Mansfield, Ark., has recently installed a new brick machine. The company is in the market for the latest improved revolving or shaker screen with one-eighth inch for openings. T. P. Edwards, of the company, says: "We have an open shale pit and our shale is hard to screen in damp weather. We cannot get screenage enough."

The company is planning an advertising campaign in local newspapers.

WILL MAKE IMPROVEMENTS

Due to the increasing demand for its brick, the Richmond Pressed Brick Works, San Francisco, Cal., is arranging plans to make extensive improvements at its present plant.

DOUBLING CAPACITY AND ELECTRIFYING

L. A. Williams, president of the Marysville (Cal.) Brick Co. announces that the capacity of the new Marysville brick plants will be doubled for the coming season, and they will be equipped with electrically driven machinery. The capacity of the plants, when enlarged will be more than four million brick annually. The Marysville Brick Co. was organized during the past year by members of the Marysville Builders' Exchange, to care for a very pressing local want.

WANTS PERMANENT STATE BUILDINGS

G. B. McDougall, of the California State Department of Architecture, in his biennial report to the Governor, protests the continuance of wooden structures in state buildings. He points out that this policy has been adopted in the past, as a makeshift to reduce the first cost of structures for the rapidly growing state institutions; but that the method is one of false economy. He shows that the initial cost of brick construction is only 20 to 25 per cent. more, and that the life of the building is easily double.

DICKEY INDUSTRIES AGAIN ACTIVE

N. W. Dickey, the president of the Dickey Clay Products Industries of California, says, "We certainly have not reached the crest of building activity as yet, but rather, have just barely started on the upward swing. The first six weeks of 1923 has shown a demand for our products far in excess of even the most active period of 1922."

The opening of 1922 found this company just resuming quantity production after a long period of inactivity due to building activity being at a minimum. The close of 1922 found the two plants at Niles and at Livermore working three shifts and barely able to keep abreast of the orders pouring in.

DENVER COMPANY INCORPORATED

Morris Brick & Tile Co., Denver, Colo., has incorporated with a capital stock of \$50,000. Its incorporators are: L. D. Morris, A. L. White, and M. P. White.

DENVER BUILDING TOTALS HIGH

Building permits of \$836,000 were issued during the short month of February in Denver, Colo. This brings the total for the first two months of the year over the \$2,000,000 mark. The winter has been a mild one and there has been no let up in an attempt to supply the housing shortage.

CLAY AT DENVER'S INDUSTRIAL SHOW

At the annual industrial show staged by the Colorado Manufacturers' and Merchants' association in the large auditorium in Denver, Colo., leading firms of Denver maintained exhibits that were well worth while, and which gave the firms some very good publicity. Among the firms receiving hon-



No. 300. \$7.80 per doz. \$90 per Gross Pair

A Year of Labor Shortage

Hold on to your men. Jobs are going to be plentiful. Men like to work for concerns who look after their comfort, safety and welfare.

Give your men hand protection. Furnish them with Tuf-Tanned Kant-Rip Mittens or Hand Pads. Send for a trial dozen for either or both kinds. Try out a pair of each, if you are not satisfied return the remaining pairs to us without charge.

**DES MOINES GLOVE
& MANUFACTURING CO.**
DES MOINES, IOWA

FREE

To any manufacturer whose men have not been using Des Moines Hand Pads who will clip out the Hand Pad shown below and mail it to us with his letter-head, we will send FREE a pair of Des Moines Pads.

No. 305
\$4.25 per Doz.
\$48 per Gross Pair



OSGOOD $\frac{3}{4}$ yd. H. D. Traction Digging Shale in N. C.

OSGOOD STEAM SHOVELS

will increase production, reduce expense by steady service, with low maintenance and operating cost. OSGOODS perform the maximum of work at minimum expense. They dig the stiffest clay and shale with remarkable ease and speed. Watch one operate.

Our Bulletins describe many interesting features. Ask for them.

$\frac{3}{4}$ and 1 yd. Revolving type
 $1\frac{1}{2}$ and 6 cu. yd. Railroad type

THE OSGOOD COMPANY
Marion, O., U. S. A.

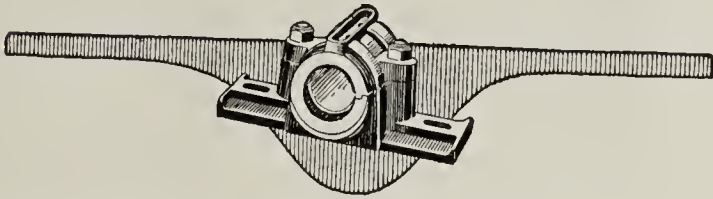
GEARS

SMOOTH running; correct in design, accurate and true to pitch, Caldwell gears are bound to please you. We make all types—machine-molded, cut tooth, mortise gears, worm gears, etc. Caldwell Promptness is Traditional. It is at your service. Our stocks assure prompt shipment.

Let us figure with you next time you are in the market.

H. W. CALDWELL & SON CO. LINK-BELT COMPANY, OWNER
Dallas, Texas, 709 Main Street—Chicago, 17th Street and Western Ave.
New York, Woolworth Bldg.

CALDWELL



Oil Fired Kilns

Have Demonstrated

to Potteries and tile works using oil that a higher percentage of first grade ware can be turned out, and in a shorter firing time, with oil than with coal.

This naturally gives a higher value to the product per kiln.

Ask for information regarding T-J system of burning oil.



Tate Jones & Co. inc.

Furnace Engineers

Established 1898

PITTSBURGH, PA.

New York — Boston — Buffalo — Philadelphia — Chicago — San Francisco — St. Louis



"IDEAL" CRADLE DUMP CARS



This car is indispensable for handling sand and clay—a general, all-round service car.

We specialize in the manufacture of Portable Track, Switches, Frogs, Turntables, etc.

Write for our Bulletins

KOPPEL INDUSTRIAL CAR & EQUIPMENT CO. Koppel, Pa.

Sales Offices: New York, Pittsburgh, Chicago, Philadelphia, Detroit, Kansas City, San Francisco

No. 4 Burner



FOERST Fuel Oil Burners Give—

Economy in Fuel—because they develop full efficiency of the oil.

Economy in Labor—because they eliminate back breaking and vitality-sapping work of firing and clinkering with coal.

Economy in Quality of Results—because color of ware is the same top and bottom. No sorting is necessary.

Write for catalog and information

JOHN FOERST & SONS, Bayonne, New Jersey

REPRESENTATIVES
Baumes-McDevitt Machinery Co., St. Louis, Mo. W. G. Edmonds, Clyde, N. Y.
Fuel Oil Engineering Co., Cincinnati, Ohio Elliott & Selby, Philadelphia, Pa.

FOERST

FUEL OIL BURNERS

orable mention by the exhibit committee was the Denver Terra Cotta Co.

CONNECTICUT BUSINESS BOOMING

New Britain, Conn, brick plants report a record amount of business booked for the season, one manufacturer reporting orders on hand sufficient to require 25 carloads of brick weekly from his plant. There are ten brick plants in the Berlin and New Britain section, all of which will run at full capacity this season. Brick is shipped from these plants to New York, Massachusetts, Rhode Island and even into Maine and New Hampshire.

WANTS INFORMATION ON CLAY PLANT EQUIPMENT

Colonel P. M. Anderson, 920 Southern Building, Washington, D. C., consulting engineer, is looking for the address of a firm manufacturing clay machinery and equipment. He is desirous of getting information regarding the equipment necessary for a complete modern plant for manufacturing both soft and stiff mud common brick.

COMPANY FORMED AT ATHENS, GA.

B. Phinzy, H. H. Hinton and R. C. Wilson, all of Athens, Ga., have organized and incorporated there the Athens Brick & Tile Co., having a capital of \$75,000, and are establishing a new plant for the manufacture of brick. Both Mr. Hinton and Mr. Wilson have been engaged in the brick manufacturing business in Georgia for many years.

TIFT SILICA BRICK CO. FORMED

Announcement has been made of the purchase of the properties of the Tift Silica Brick Co., of Tifton, Ga., from the estate of the late H. H. Tift, by W. W. Pace, Jr., who has been engaged in the brick manufacturing industry in Georgia for some years. Mr. Pace has already taken charge and is now operating the plant. The purchase also includes 400 acres of land near Tifton, carrying much valuable clay. This company has for several years operated successfully at Tifton, manufacturing a white silica brick that is popular in the southern field for both wall and facing purposes.

BRICK TO HAVE PLACE AT ATLANTA SHOW

The beauty and stability of brick for home construction will be featured by the Keeling-Cassidy Brick Co., the B. Mifflin Hood Brick Co., and V. H. Kriegshaber & Son, Atlanta firms, at the annual "Own Your Home" exposition to be held in Atlanta in April, it has been announced by the Atlanta Realty Board in naming the lists of companies that will have exhibits. The number of exhibitors is much larger than last year's exposition, indicating that the display this year will be one of the largest and most elaborate of its nature that has ever been held in the South.

The brick displays, the Hood company has announced, will be entirely of an educational and instructive nature, illustrating the stability, beauty and general satisfaction of brick for home construction.

The display will be held in the Atlanta Auditorium, opening on April 19.

CHANGE FROM COMMON TO FACE BRICK

The Georgia Brick & Tile Co., of Rome, Ga., one of the plants of the B. Mifflin Hood Brick Co., of Atlanta, has changed from the manufacture of common brick to rough texture face brick, having a daily capacity of 50,000 brick. The plant of the Rome Fireproofing Co., recently taken over by the Hood company and made into a face brick plant, is now in steady operation on this product, being one of the few plants in the South making impervious face brick. The

company invested about \$50,000 in improving and enlarging this plant following its acquirement.

This company now has a plant at Four Oaks, with a daily capacity of between 50,000 and 75,000 brick, according to an announcement by J. W. Sanders, who has been named president of the company. Some new machinery is being installed. W. H. Smith, of Four Oaks, was named secretary and treasurer of the company.

TO PUT BANNER PLANT ON CAPACITY

The old plant of the Banner Clay Works near Edwardsville, Ill., recently acquired by the Alton (Ill.) Brick Co. is being rapidly put on a capacity basis. For the past several years the plant was operated at irregular intervals. C. H. Henderson, plant manager, says that for a while the plant will make building brick, but in the early summer will be converted for heavy paving brick. It is equipped with eight kilns each with a capacity of 100,000 building brick. All of the machinery of the plant was dismantled and rebuilt by the new owners.

\$300,000,000 CHICAGO'S BUILDING TOTAL FOR 1923

\$300,000,000 worth of new building will be erected in Chicago in 1923 according to figures given out by the Citizens' Committee to Enforce the Landis Award. This estimate is based on the \$55,000,000 worth of permits taken out between January 1 and March 10.

"The \$300,000,000 total is based on a pro rata of the January, February and March figures over the entire year," said general manager F. W. Armstrong. "We have not entered the peak building months as yet, and the total for the year probably will be far over the \$300,000,000 estimate. May, June and July are normally the big months for building in Chicago, and the year's total depends on the activity in these months."

BRICK SCHOOL HOUSE 63 YEARS OLD

Here's a brick school house, proudly spoken of as a structure withstanding the ravages of time, for 63 years.

A good many of Chicago's best known business and professional men love the sight of this old building, however sad to say, they never hear its olden time name mentioned. These men learned the alphabet in this old brick school house.



A Brick Schoolhouse 63 Years Old. It Is Still Doing Duty.

It used to be known as District No. 67, and a sand stone tablet imbedded in the brick still proclaims its old name and gives the date of its building—1860.

It is now known as the Golf school, located on one of the principal north and south concrete highways, within a stone's throw of the valued acres of the Glenview golf course, and within sight of the little village of Glenview, Ill.

The various school authorities of Cook County are proud of this brick enclosed schoolroom, and to many men and women, the memory of it is dear whatever name it may bear.



BLACK BETTY COAL

Why not burn a coal, so that when your day's work is done, "You may wrap the drapery of your couch about you, and lie down to pleasant dreams"?

The ideal coal for Steam and Clay Burning Purposes.

Low in Sulphur and Ash
—High in Heat Units.

Mined at Clinton, Indiana, on the C. & E. I. Railway.

We solicit your inquiries for shipments on open market, as well as contract.

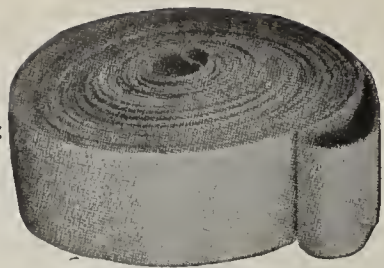
Zimmerman Coal Company

609 Tribune Building

Long Distance Telephone 9921

Terre Haute,

Indiana



"Very Lowest Cost to Convey"

WITH

GREEN DUCK BELTS

Writes Mr. E. Zimmerman, Vice-President of The Ohio Gravel Ballast Co., Cincinnati, Ohio.

He further states—

"We own and operate several gravel plants of large capacities, and over a period of two years conducted a test of various conveyor belts and found the Allied Belt to be one of the very best belts on the market today. At one plant in particular this belt handled material at the very lowest cost to convey."

"We have several of their belts in service at the present time."

This is another well-known company that is sold on Green Duck Belting. When a good conveying belt is needed they naturally think of Green Duck.

The Allied Belting Co.
GREENVILLE, OHIO



The best part of the story, perhaps is that it is still doing business within its same sound brick walls.

SUPPLEMENTING NATIONAL ADVERTISING

The illustration accompanying this item shows how the Richards Brick Co., of Edwardsville, Ill., is cashing in on the advertising of the Common Brick Manufacturers' Asso-

BRICK!

.....

Up to a few years ago, manufacturers of brick did not advertise. "Everybody knows about brick," they said, "knows how good they are, why waste money and effort to tell people something they already know."

So they slept (and slipped) until one fine day they woke up to the fact that inferior building materials were making great inroads into their business by extensive advertising and extravagant claims.

Then, the brick men woke up—they decided to tell people about brick, about the modern up-to-date product far superior to the old time brick—about the beautiful, permanent colors now produced—about the real economy of brick construction.

This week marks an epoch in brick advertising,—for the first time BRICK uses an entire page in the Saturday Evening Post. See it in this week's issue. It is OUR ad, for we are members of the Common Brick Association of America. We have the booklets advertised. Step in to our office and see them.

Richards Brick Co.

Palace Building

This Is One of the Best Ways to Cash in on Your Association's National Advertising.

ciation in magazines of national circulation. The national advertising of the association builds good-will and the local advertising of the individual companies tying in with this national publicity brings the good-will into the office in the form of actual orders.

CREATE STATE BUILDING COMMISSION

The senate bill in the Indiana general assembly to create a new state department to be known as the administrative building council of Indiana was passed by the legislature recently. It is expected the bill will be signed by the governor. It will give the commission authority over virtually every class of construction in Indiana except residential construction and is the forerunner of a full fledged state building commission which will unify the building codes in the various cities and towns.

NEW BUILDING CODE FOR EVANSVILLE

Now that the sessions of the Indiana general assembly have closed, Mayor Elmendorf, of Evansville, Ind., has announced that every effort will be made to have a new building code proposed by Building Inspector Ed Kerth, approved by the city council. Officials are waiting, the mayor said, only to find out what action was taken by the state body on building laws of Indiana. Mr. Kerth has had the complete code drawn up for several weeks and already has submitted copies to the Board of Fire Underwriters and to the building committee of the city council. It will take three or four weeks to pass on the code when it is introduced.

Southern Illinois Coal

— NUMBER 6 SEAM —

Franklin, Williamson and Saline Counties

The Best Coal Mined in Illinois for Clay Products Plants

Coal from the Southern Illinois fields has long been favored by clay products plants on account of its purity, long flame, high heat and low ash.

We operate seven mines in Franklin, Williamson and Saline Counties with a daily capacity of 17,000 tons, assuring satisfactory service at all times.

For points where Southern Illinois coal has a disadvantage in freight rate, we can supply good clean coals from our operations in the Springfield and Danville districts of Illinois; Sullivan County, Indiana; Le Flore County, Oklahoma, and Sheridan district, Wyoming.

*Let Us Co-operate
in securing the best
coal for your plant.*

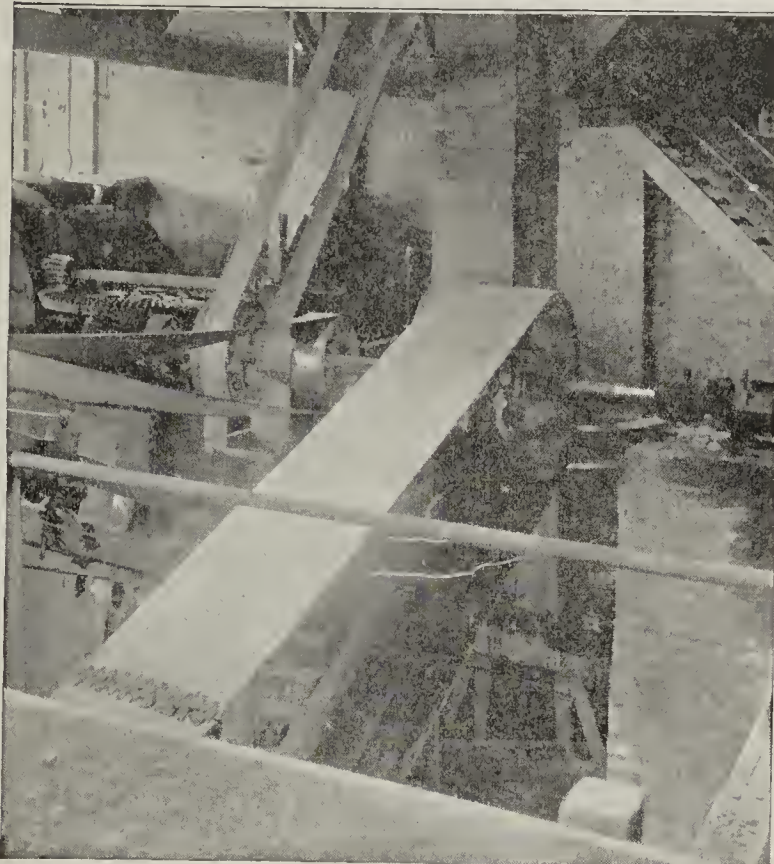
PEABODY COAL COMPANY
332 South Michigan Avenue
CHICAGO

Cincinnati		Deadwood, S. D.
St. Louis	Kansas City	Kleenburn, Wyo.
Springfield	Omaha	Spokane, Wash.

PEABODY for SERVICE



GOODYEAR MEANS GOOD WEAR



Copyright 1923, by The Goodyear Tire & Rubber Co., Inc.

On all the hard drives for which the brick and clay industry is noted—the main drive, the crushers and grinding pans, pug mills and brick machines, represses and auxiliaries—and in all conveying and elevator duty, Goodyear Belts have an earned reputation for powerful, trouble-free service and long, economical life.

TRANSMISSION

Goodyear, Klingtite,
Glide

CONVEYOR

Goodyear, in distinctive
types for specific
services

HOSE

Air, Water, Steam, Fire
and Mill

PACKING

Asbestos and Rubber
Sheet

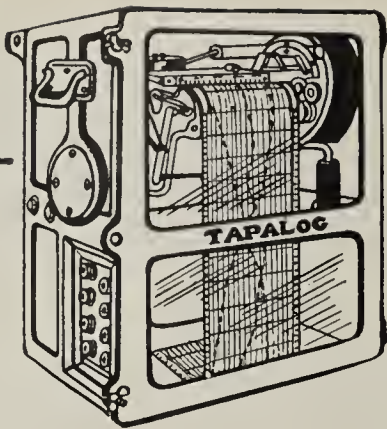
PUMP VALVES

Goodyear Belts and other mechanical goods for the brick and clay industry are scientifically specified to their work under your conditions of service by the G. T. M.—Goodyear Technical Man.

For performance records or any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

GOODYEAR
BELTS • HOSE • VALVES • PACKING



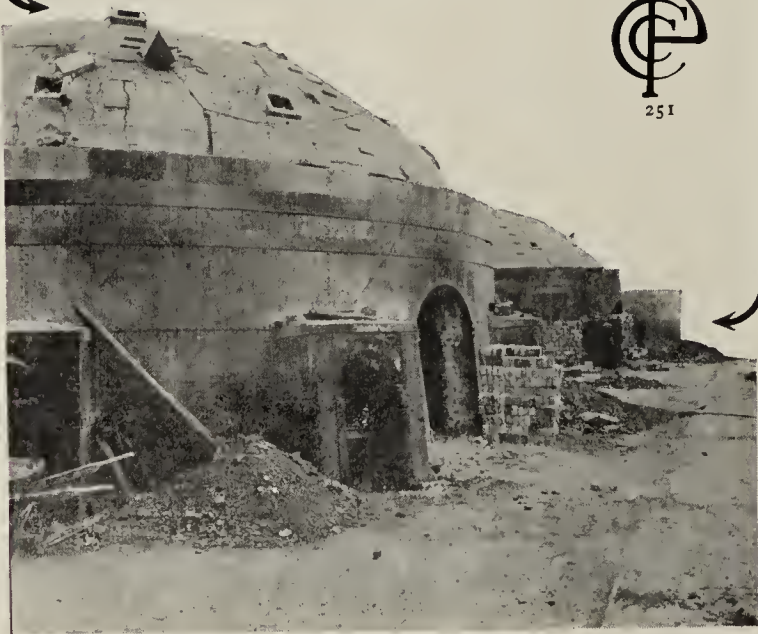
When it comes to Pyrometer Equipment

Clay products manufacturers who have never known WILSON MAEULEN PYROMETERS are, one after another, coming to learn that they afford the truest combination of

Accuracy
Durability and
Convenience

in burning ware.

WILSON-MAEULEN COMPANY
Concord Ave., and E. 143rd St.
New York City



GETS LARGEST ROOFING TILE ORDER

The Mid-Continent Clay Co. of Peru, Kan., has secured the contract for roofing tile for the Sante Fe Station at Lyons, Kan., and has also secured the order for their "midco" Peruvian Mission tile in special color effects. "This job will amount to about 2,000 squares and we believe that it is the largest roofing tile contract being placed in the United States at the present time," says L. W. Wallace, sales manager.

BANNON OPERATING TO CAPACITY

The P. Bannon Pipe Co., Louisville, Ky., is running full blast on sewer pipe and hollow tile, with its usual production of fire clay products, but has so much business in hand and in sight that it will not try to produce or market this year some new face brick lines which it has developed, and which it expected to place on the market this year. There is so much street and sewer work, along with house connections, taking sewer pipe in all sizes, and so much big work requiring hollow tile, that the company is operating at capacity.

The P. Bannon Pipe Co., is the pioneer of the local clay working companies, and was one of the guests of the Louisville Board of Trade, at a recent dinner given in honor of 134 business houses of Louisville, which have been in continuous business for a half century or more. An interesting booklet, devoted to the histories of these houses, was gotten out and distributed at the dinner, while local papers ran special sections devoted to the accomplishments of these companies.

MAINE STOCKS ARE GONE

Brick plants thruout Maine report that their stocks have been practically depleted and that inquiries for immediate deliveries of brick are becoming more numerous. It will take several months, however, for the Maine kilns to supply orders. It is expected that there will be an advance in prices as soon as the kilns start operating again.

NEW PLANT FOR MARYLAND

The Bacon Hill Brick Co., Elkton, Md., recently organized with a capital stock of \$80,000, will operate a local plant for the manufacture of common brick and other burned clay products, it is said. The new company is headed by James F. Evans and John Mattiussi, both of Elkton.

NEW MASSACHUSETTS COMPANY

The Springfield (Mass.) Brick Co. has been incorporated with an authorized capital of \$97,500, to manufacture and deal in brick, it is reported. The incorporators are Clayton H. Goddell, Harold E. Clark and Harry G. Fisk, all of Springfield.

PLANNING NEW PLANT AT LAUREL, MISS.

The brick manufacturing plant that burned a year ago at Laurel, Miss., has been rebuilt and is now one of the most modern of its kind in that city. Plans are under way to build a pressed brick plant and when completed, these two plants will have cost \$100,000. The output of the two will be 65,000 brick a day.

PROGRESS FIGHTING RAILROAD SUIT

The Frisco Railroad has instituted condemnation proceedings in the St. Louis Circuit Court against the Progress Press Brick & Machine Co., St. Louis, Mo., it is reported. The suit filed is said to be an effort to regain control of a road leading from the brick company's plant to the Frisco tracks on the railroad company property north of Fyler Avenue between the tracks and the River Des Peres. Two years ago the brick company was granted an easement to use the road and now declines to relinquish the right at the price offered by the railroad. The Frisco plans to erect new shops adjacent

T



that 33c of every plant dollar that goes for FUEL?

According to Brick and Clay Record at least 33 cents of every plant dollar goes for fuel. Other authorities estimate this cost as high as 50 cents.

Fuel, in every plant, is too costly to be carelessly used. In brick and clay work fuel wastes can be reduced by the adoption of proven temperature control methods.

Temperature control, the first step in reducing spoilage, is consequently the first step in conserving fuel.

Many of the country's foremost plants secure the maximum temperature control by the use of Thwing Pyrometers. Thwing Pyrometers, made especially for the brick and clay industry, embody features that insure exceptional service.

Write us and we will gladly send you interesting and valuable pyrometer information.

Thwing

PYROMETERS

Thwing Instrument Company
3347 Lancaster Ave. Philadelphia, U. S. A.

121

The Western Brick Co.,
Danville, Ill.

The Milton Pressed Brick Co., Ltd.,
Toronto, Canada.

The Standard Brick & Supply Co.,
Charleston, W. Va.

The West Virginia Brick Co.,
Charleston, W. Va.

The Richlands Shale Brick Co.,
Mansfield, Ohio.

The Mansfield Shale Product Co.,
Mansfield, Ohio.

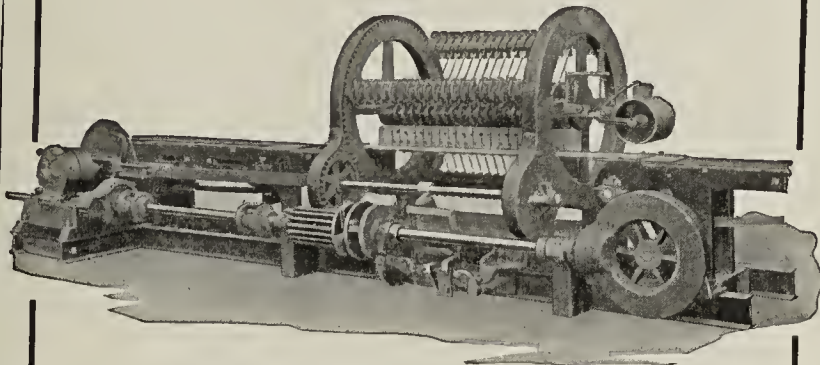
The Cambria Clay Products Co.,
Blackfork, Ohio.

The Milliken Brick Co.,
Wilkinsburg, Pa.

The American Fire Brick Co.,
Spokane, Wash.

The Mitchell Brick Co.,
Cincinnati, Ohio.

Will Install Freese Cutters



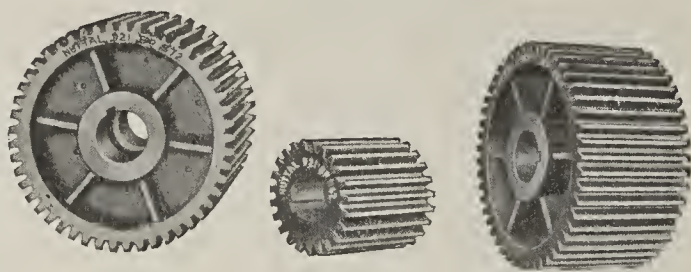
Freese Rotating Automatic Cutter

Where a Continuous Production
of Perfect Brick is Essential, Freese
Cutters are Usually Selected.

E. M. FREESE & COMPANY
GALION, OHIO

Dependable Machinery of Proven Efficiency

Nuttall Service to the Brick & Clay Industry



Nuttall Cut Gears for any application in the Brick and Clay Industry are guaranteed to cost less than cast tooth gears to operate.

Nuttall Heat Treated Gears in any service are guaranteed to cost less than untreated gears because they last three to five times as long.

Nuttall Heat Treating Processes applied to many tools and appliances used in the Industry make them cost less because they make them last longer.

*You pay many times for
necessary plant better-
ments in unnecessary
high costs if you delay
installing them.*

R.D. NUTTALL COMPANY
PITTSBURGH  **PENNSYLVANIA**

Philadelphia Office
430 Land Title Bldg.

Chicago Office
2133 Conway Bldg.

Nuttall

to the property involved and contends that the roadway is a necessary adjunct to the improvement.

WANTS TO BUILD PLANT IN SALAMANCA

It is possible that a new brick manufacturing plant will blossom forth in Salamanca, N. Y., it has been learned. Secretary Quackenbush of the Chamber of Commerce desires to put to good advantage the barren slopes near the city and believes the establishment of a new brick plant will be a permanent and good addition to the industries of the vicinity.

SCHNEIDER BUYS TWO CLAY MINES

The "D" mine at Roswell, Ohio, of the H. C. Schneider Sewer Pipe Co., was sold this week at a receiver's sale to Herman C. Schneider, of New Philadelphia, president of the company, on his bid of \$58,625. Schneider also purchased the mine at Elba, Washington County, for \$27,950. Both bids are two-thirds of the appraisal.

FIRE DESTROYS PART OF PLANT

On February 7, 1923, fire completely destroyed the "sand-mill" of the Everhard Brick Co., Massillon, Ohio. Rebuilding will be begun at once on a new site and all new machinery will be installed in the new plant. H. T. Yost, general manager, states that production has been increased to 50,000 face brick per day, by installation of a Hummer electric screen and a new auger machine.

APPOINT RECEIVER FOR DENISON

Plans to have the Denison Brick & Tile Co., New Philadelphia, Ohio, absorbed by the Coal, Clay & Rock Products Co., which concern according to the petition was pictured as having \$37,000 in its treasury, received a jolt recently when Judge White appointed G. H. Overholt, of Denison, receiver for the brick company. This is the first step by its stockholders to force E. L. Junod, a representative of the Coal, Clay & Rock Products Co., to return to the stockholders all of their stock, it is said. Overholt furnished bond in the sum of \$4,000.

BUYS CLAYVILLE PLANT

The Italian Brick Co., Philadelphia, Pa., has purchased the brick plant at Clayville, Pa., it is stated. Joseph Olbin is making arrangements at South Vineland to get the plant in good condition for operation.

FILES BANKRUPTCY PETITION

The International Clay Products Co., 1421 Chestnut Street, Philadelphia, Pa., has filed a voluntary petition in bankruptcy with liabilities stated as \$154,698, and assets, \$272,164 a report states. Lack of ready operating capital is said to be the cause of the financial difficulty.

HAZLETON REPAIRING EQUIPMENT

The Hazleton (Pa.) Brick Co., has improvements under way at its plant and is making ready to resume operations early in the spring. Repairs are being made to the machinery and operating equipment, and it is expected to give employment to a large working force for a number of months to come.

McKEESPORT WILL HAVE NEW PLANT

A stockholders' meeting of the Rockhill Mineral Co., McKeesport, Pa., was held January 2, 1923, and the following officers were elected: J. S. Stentz, vice-president; D. K. Orr, treasurer; J. J. Reppir, secretary; E. M. Reppir, superintendent. Tests of clay are being made for this company by J. C. Steele & Sons, Statesville, N. C. Mr. Reppir went

ATLAS

EXPLOSIVES

for quarrying



GREATER efficiency is assured by Atlas Ammite. And in addition to the excellent blasting results the use of Atlas Ammite prevents the usual headaches caused by the loading of ordinary types of explosives. It is the ideal explosive for quarry work—an explosive that may be used in summer or winter with the assurance that it always will **SAVE** the time and labor ordinarily lost through headaches and thawing. Let the Atlas Service Man help you to determine what grade of Ammite is best suited to the requirements of **YOUR** work.

AMMITE

—cannot freeze—

ATLAS POWDER COMPANY
WILMINGTON, DELAWARE



Branch Offices:
Allentown, Pa.; Birmingham, Ala.; Boston, Mass.; Charleston, W. Va.; Chicago, Ill.; Des Moines, Iowa; Houghton, Mich.; Joplin, Mo.; Kansas City, Mo.; Knoxville, Tenn.;

Branch Offices:
McAlester, Okla.; New Orleans, La.; New York City, N. Y.; Norristown, Pa.; Philadelphia, Pa.; Pittsburg, Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis, Mo.; Wilkes-Barre, Pa.

A Big Stride Forward

because the "POIDOMETER" substitutes automatic, accurate mechanical control of mixture of clay and water for changeable, inaccurate human control.

Read what Howard Frost, president of the Los Angeles Pressed Brick Co., Los Angeles, Cal., says—

"The clay and water are adjusted manually" and "all subsequent variation in clay feed, water feed, and moisture in the clay is handled automatically by the Poidometer, thus eliminating the services of the usual pug mill operator required by other types of feeders."

The actual tests are:

	Moisture in Clay on Poidometer	Moisture in Finished Ware
7:30 a. m.....	12.5%	20.7%
10:45 a. m.....	11.3%	20.4%
1:00 p. m.....	9.9%	20.8%
4:00 p. m.....	12.0%	20.7%

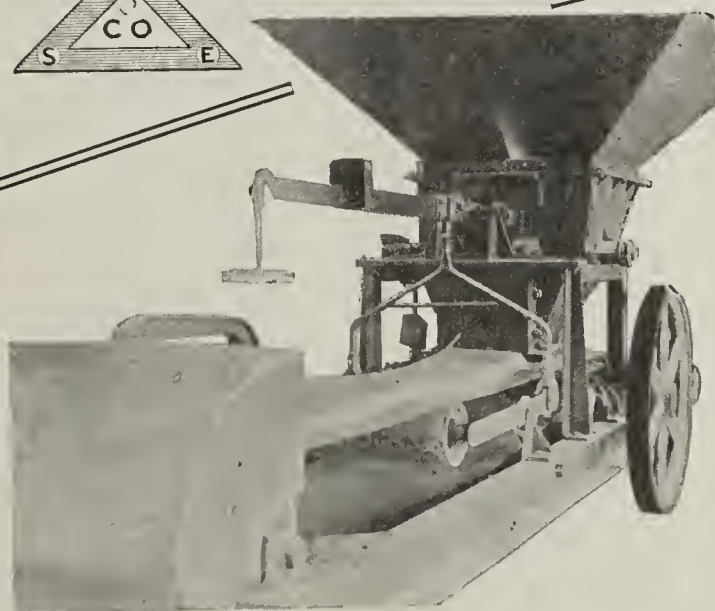
Write for complete information

Schaffer Engineering and Equipment Company

2828 Smallman St.

PITTSBURGH

PA.



UNIVERSITY OF ILLINOIS
LIBRARY

"Hurricane" Dryers



TUNNEL DRYER FOR INSULATORS

A QUARTER of a century's experience in the drying field coupled with up-to-date equipment and the best of service has placed "Hurricane" Drying Equipment in the lead.

Our engineers are prepared to submit specially designed machines where standard machines will not do.

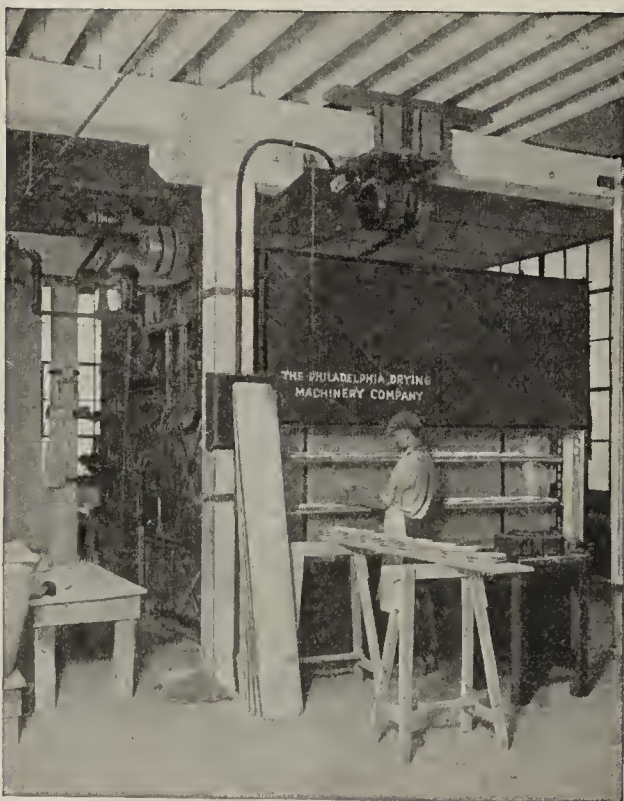
Automatic Mangles
Automatic Stove Rooms
Tunnel Dryers
Sagger Dryers
Electrical Porcelain Dryers



235

**The Philadelphia
Drying Machinery Company**
3351 Stokley St. Philadelphia, Pa.

Western Office: 1814 Continental Bank Building, Chicago



AUTOMATIC MANGLE FOR DIPPING

to the Steele plant recently to go over the tests and if these are successful, the company will enter the manufacturing field at once. The services of W. H. Gibson, McKeesport, Pa., well-known mining and railroad engineer, have been secured and he will direct and advise with the assistance of John R. Turner, field editor of Brick and Clay Record and well-known engineer of Akron, Ohio.

Work of building the new plant will start upon Mr. Reppir's return from the Steele plant.

TO BUILD HOMES FOR WORKERS

The Elk Fire Brick Co., Renova, Pa., is maintaining active production at its plant, giving employment to a large working force. Heavy shipments are leaving the works for Western Pennsylvania as well as eastern distribution. It is expected to continue on the present schedule for an indefinite period. The company has plans under consideration for the erection of a number of dwellings at Drury's Run, near Renova, for the use of employees at the plant.

WANTS TO BUILD BRICK PLANT

Channing M. Ward, 1817 Hanover Avenue, Richmond, Va., states that he is interested in starting a brick plant. Interested parties can communicate with him at the above address.

LOGAN TAKES OVER CLAY COMPANY

Hugh Logan, of Glenwilliams, Ont., has taken over the business of the Terra Cotta Brick Co., and will reopen the plant for manufacturing early in April.

THE BUILDING SITUATION

(Continued from Page 596.)

Feb., 1923.	Feb., 1922.	Feb., 1923 Gain or Loss, Compared With Feb., 1922.	Jan., 1923.	Feb., 1923 Gain or Loss Compared With Jan., 1923.
\$23,982,439	\$16,091,451	\$7,890,978	\$21,551,454	\$2,430,985
2,322,685	1,332,129	990,556	3,455,856	Loss
28,514,414	14,619,370	13,895,044	20,713,266	7,801,148
881,933	349,194	532,739	831,807	50,126
2,563,959	9,458,787	Loss	5,884,866	Loss
8,669,305	4,068,643	4,600,662	7,246,838	1,422,467
6,000,502	4,441,399	1,559,103	5,881,687	118,815
83,505,824	56,908,432	26,597,392	70,140,255	13,365,569
12,022,356	4,696,029	7,326,327	11,497,018	525,338
10,248,825	8,896,610	1,352,215	10,801,135	Loss
4,821,987	4,514,332	307,655	5,129,473	Loss

Among the cities with records comparable with February, 1922, there were 126 with an aggregate gain of more than \$89,000,000.

Municipal Building Forecast for 1923

A nation-wide survey of the contemplated expenditure for public buildings by municipalities during 1923 shows that 92 cities have already planned to spend more than \$260,000,000 for schools, police, fire and various other administration buildings. More than a score of other important cities will probably add public appropriations before Spring, bringing the total for less than 120 cities up to approximately \$350,000,000 and even this is likely to be increased before the year closes.

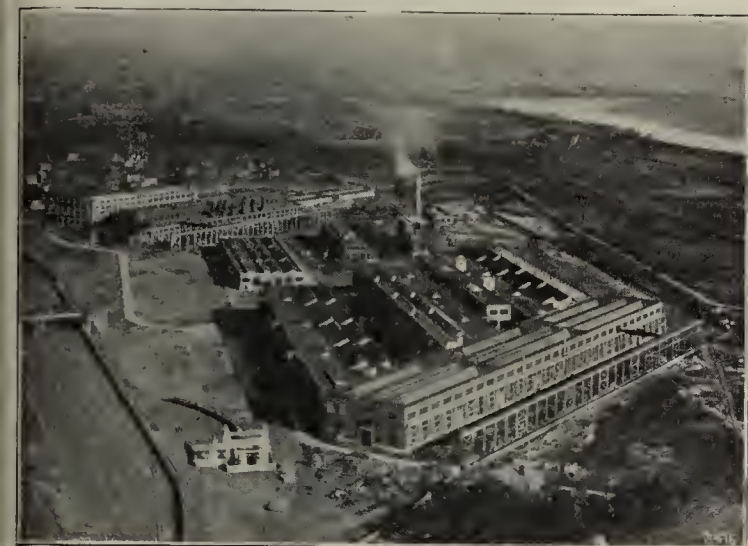
It seems to be the general opinion that the greatest part of 1923 will show tremendous activity.

Among Our Advertisers

STEAM AND STOKER ENGINEERS TO HOLD CONVENTION IN PHILADELPHIA

During the week of April 9th there will be a convention of steam and stoker engineers at the South Philadelphia Works of the Westinghouse Company. The meeting will bring together engineers from all sections of the country. These engineers look forward with pleasure to this meeting because it combines several interesting features.

There they will learn from the experts on design, construction, distribution, erection and operation, in detail, all the new kinks and fine points of the steam industry. The trip to Philadelphia is always a pleasant one because that city has many places of historical interest to occupy the spare hours, such as, Independence Hall, The Betsy Ross House, where the first flag was made; Carpenters' Hall, Scene of the First Continental Congress, etc.



South Philadelphia Works of Westinghouse Elec. & Mfg. Co.

Too, the Philadelphia Westinghouse Works is the second largest of the 21 factories and is completely new and modern. It is located on a site of 500 acres of land. The list of products include: Steam turbines, condensers, steam engines, reducers, reduction gears, air pumps, condensate pumps, circulating pumps, gas engines, refrigerating apparatus and gyroscopes. There are more than 3,500 people employed in the works. There the raw manufacturing materials from two railway systems enter one end of the plant and progress through the foundry, forge shop, machine shop, erecting plant, inspection department and testing departments to the shipping department. A modern power house provides steam and electricity while a large modern office building houses the erecting forces. Special attention is given to safety, sanitation and welfare work, and a community consisting of 200 well-built modern homes is located on the company's property near an athletic field.

* * *

PROGRESS OF THE SCHURS OIL BURNER

So accustomed have we become, in these days of ingenious invention, to the tremendous forward strides in the development of labor saving equipment and to the simplification of production methods thru the application of improved devices that one seldom gives much thought to the painstaking experimental work involved in bringing them to their present state of perfection.

It was over thirty years ago that John Schurs, then the Chief Engineer of a large brick plant in Illinois, began to interest himself in the possibility of using crude oil as fuel for clay burning. Later, going to Los Angeles, he continued his tests in a small back room shop, where he brought his burner to a commercially practical stage, and in 1905 actively commenced manufacturing them in a small way, gradually increasing to a point where he was shipping his product all over the United States.

In 1919 B. C. Berg, an aggressive young business man, was elected president of the Company and assumed active management of its affairs, which gave Mr. Schurs the opportunity, as Consulting Engineer, to continue his investigations and development. The business prospered under Mr. Berg's

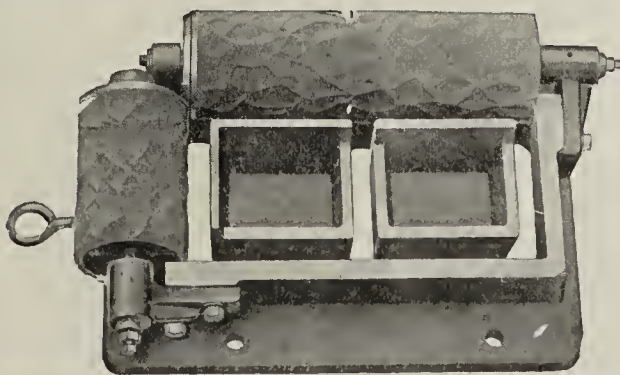
**"IF IT'S
DIES
YOU WANT
WE
MAKE 'EM"**

Backed by many years' specialized service of clay-working dies, we are well equipped to furnish dies for hollow ware, silo block, drain tile, brick, etc., and for many special purposes.

*Send us a rough sketch or
blue print and let us figure
on your requirements.*

**The
Louisville Machine
Manufacturing Co.**

LOUISVILLE, OHIO



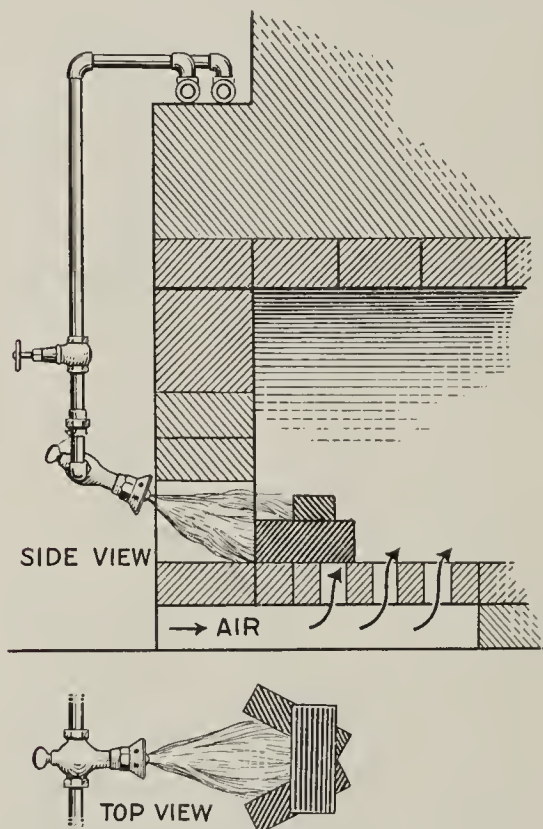
leadership, and in 1920 a new plant was erected and equipped with new and specially designed automatic machinery, where burners are now produced in large quantities and in wide variety for every known type of kiln and for a large number of other industrial uses.

The increase in the industrial consumption of crude fuel oil and gas has justified Mr. Schurs' vision, as evidenced by a recent installation of Schurs combination oil and gas burners in the tunnel kilns of the Whiting Mead Pottery, Los Angeles. At the Batchelder Tile Co., Los Angeles, Schurs burners are used for burning the high grade ornamental and architectural tile in which this company specializes. The Los Angeles Pressed Brick Co. now uses over 1100 Schurs burners in all of their plants for the manufacture of brick, terra cotta, etc., while it is conservatively estimated that 90 per cent. of the clay wares manufactured on the Pacific Coast are burned with Schurs burners.

The ability to accurately regulate the fire results in uniform color with practically 100 per cent. burns. A given heat temperature can be maintained any length of time desired; grate bars are entirely done away with; there are practically no repairs to fire boxes; no ashes; no soot, and no smoke to contend with. Atomization is accomplished by use of either air or steam under high or low pressure and, where circumstances permit, Schurs burners may be operated with either pump or gravity oil supply.

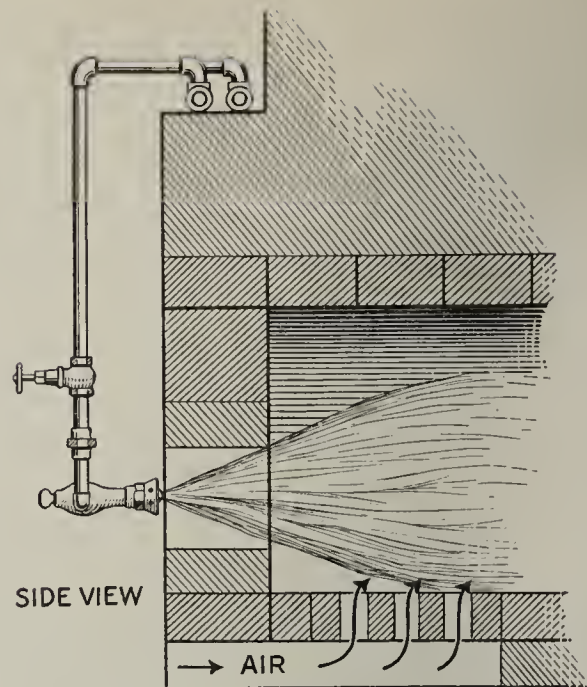
An exclusive feature, and doubtless an important reason for the popularity of this burner, is the adjustable tip, enabling the operator to change the atomizing point instantly to suit a low or heavy fire.

A better idea of the simplicity of the Schurs oil burning



A Down-draft Kiln Fire Box with Schurs No. 1 Burner turned downward for water smoking.

Lower (small) illustration shows three bricks used as a target. These bricks are removed when burner is turned up for high heat.



A Down-draft Kiln Fire Box, showing the position of Schurs No. 1 Burner at a high heat with burner raised, shooting straight toward fire bag.

equipment will be gained from a careful study of the accompanying diagrams.

A very interesting and profusely illustrated Brick Bulletin has just been published that contains not only descriptions of the several models of burners, but also much technical data on oil burning, as applied to clay ware manufacture. These Bulletins are for free distribution and will gladly be sent to any address on request made to the Schurs Oil Burner Co., 5332 Santa Fe Ave., Los Angeles, Calif.



Hendrick Manufacturing Company, of Carbondale, Pa., makers of perforated metals, screens, etc., announce the removal of their Pittsburgh office, which is in charge of B. G. Shotton, to 544 Union Trust Building, that city.

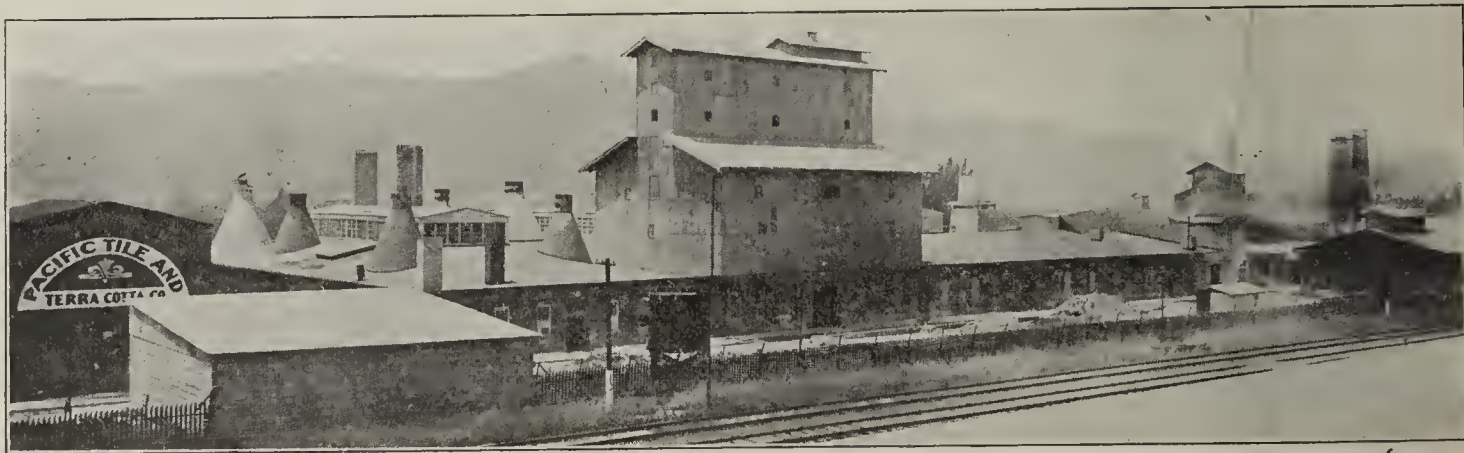


The Zelnicker Company have now moved to new offices in the Chamber of Commerce Bldg., 511 Locust Street, St. Louis, Mo., and from their front windows they can look out on their old offices, as both face the Federal Reserve Bank site.

The preliminary work on the new Federal Reserve Bank in St. Louis is doing away with several old landmarks, among those being the building formerly owned and occupied by Globe-Wernicke Co. The razing of their building necessitated their finding new quarters, and they have purchased the structure which has been occupied by Walter A. Zelnicker Supply Co. for the past twenty years. This made necessary the removal of Zelnicker to their present new quarters.

The main plant and yards of the Walter A. Zelnicker Supply Co. in East St. Louis now cover more than fourteen acres.

An unusual souvenir was that given out by Morse Chain Company at the recent C. B. M. A. convention. It was a pocket adding and subtracting machine, or "Arithmometer," to give the little device its business name.



The Tropico Potteries, Tropico, Calif., where 350 Schurs Burners are in Use.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

The Restraining Factor in a 400 Per Cent. Greater Market

PAUL TOWNSEND owns a meat market on Main Street in Rhinelander, a town of 6,000 population. "Paul" as he is known among his friends and customers is an enterprising and moderately successful business man of good standing in his community. He has lived in a house that was built many years ago by his grandfather.

The old homestead built of frame has reached a state where repairs are quite heavy. Moreover, Mrs. Townsend and the children have been constantly urging a more modern home—one more in harmony with those of their friends and neighbors.

Mr. Townsend likes Dr. Hawkinson's house quite well and considers modelling his house after the doctor's home. He doesn't like the color it is painted, however, so he thinks he will paint his house like Mr. Woods', principal of the high school.

Mrs. Townsend is happy that at last her husband is seriously considering building a new house. She is planning all sorts of things for the home and enthusiastically reads every item in every newspaper, magazine, and pamphlet that has any reference to home-building or furnishings. She reads advertisements about brick and tile and writes for literature on the subject. She brings the matter up before her husband. "Sure enough," he says, "I've never thought about brick and tile. Let's see what Bill O'Connor has to say about it." Bill O'Connor is the carpenter-contractor.

Mr. Townsend finds that O'Connor is glad to build a brick or tile house. He says it makes a good structure. (It doesn't always happen this way.) Several days later a representative of the Alpha Brick & Tile Co., having learned of the inquiry of Mrs. Townsend, thru the Brick and Tile Association visits Rhinelander to recommend the use of a tile house faced with brick or stucco.

A few days later Mr. Townsend meets Mr. Meyer, the local supply dealer who has furnished him from time to time with material used in remodeling the old homestead and with whom he has often chatted at times when they were together planning the local Fair or some other civic event. Paul reveals his plans to Mr. Meyer,

who, unbeknown to Paul, is quite displeased with the brick and tile men because they came in and sold the East End school job two years ago, ignoring him entirely. The dealer tells Paul that brick or tile is expensive, the houses are damp and cold, and besides it would take a long time for the brick or tile to come up from Clayville, where they are made. "Why not build a frame house, and then in three or four years you can put on a new coat of paint and you have a brand new house again," says Meyer, "and besides you can always change the color if you don't like the one you've got."

This has set Paul to thinking. His automobile requires quite a little money in upkeep and repairs and he could use the money saved by building of frame, to good advantage. He speaks to O'Connor again and O'Connor is more at home constructing frame houses and will get the job anyway so in his desire to please Paul most, he makes no strenuous effort to convert him back to brick or tile.

Thousands of "Townsend" in U. S.

There are a good many men of the same means, position, and standing as Mr. Townsend in Rhinelander. There are 134,000 towns in the United States—towns under 25,000 population—where there are men of almost identical wealth, enterprise, environment and ambitions as Mr. Townsend. There are approximately 600,000 building operations in the United States annually. The case of Mr. Townsend is typical of some two to three hundred thousand of them in the small towns.

The above case of Paul Townsend is written from experience obtained in a personal field investigation made by Brick and Clay Record among eight dealers in the state of Wisconsin.

It is noticed that advertising, altho it had broken the sales resistance against brick or tile and had even created desire for the product, failed to sell because a very potent factor, the local building supply man who had lived in the community many years, had served nearly every householder some time or other in his career and who was well-known by everyone, destroyed its effect and spoiled the job.

A dealer in a certain town* under 25,000 population in Wisconsin, annually handled from 50 to 80 cars of sewer pipe. A big town job came thru one day and the very manufacturer who sold thru the dealer quoted direct and took the job. The result was that the dealer quit handling sewer pipe at a big loss to the manufacturer. What has happened in this town has happened in thousands of other towns in the United States, not only with sewer pipe but with all other materials where dealer protection was not granted.

If the clay products manufacturer wants business in the small town he must decide on one of two courses; either he must employ the building supply dealer as a sales agent or he must try to cover the market himself. If he decides on the latter course endeavoring with his advertising to educate the home builder to the use of brick and to make friends with the carpenter-contractor, he will be making a competitor of the building supply dealer. This dealer is a human being and must make his living from the profits on materials he sells. If he cannot sell brick and tile at a profit and if he finds that the manufacturer is taking this business away from him he will in sheer self-defense fight it as hard as he can.

Advertising which the various clay products associations are doing, is now arousing an immense amount of interest in the country and the manufacturer is flooded with the names of potential home builders who are interested in brick and tile. He cannot possibly follow up these tips as they should be followed unless he maintains a large selling organization. A selling organization which could adequately take care of the manufacturer's interests in the small towns in his market would be as expensive but not nearly as effective as a well organized dealer representation to whom legitimate commissions were paid.

There is a market open for clay products that is four-fold the present production. All that is needed is a different dealer attitude on the part of manufacturers and a little encouragement for the dealers. Will the clay industry see the light as the cement industry has?

*Name will be furnished upon request.

Not a Brick House in Ten Years

Brick and Clay Record Reporter Gets Some Inside Dope from Interviews with Eight Wisconsin Small Town Dealers

THE CHIEF PROBLEM confronting the clay industry is not one of manufacturing but of marketing. There are two ways of distribution, either thru a retailer or selling direct to the consumer. To be successful, an industry such as the clay industry must decide which of the two methods is best for its products and having decided, must follow it hard.

Because the clay industry has never been unanimous on this question is one of the main reasons why there are today 15 frame houses to every one of brick in towns of less than 25,000 population. **The greatest single influence in determining the kind of homes to be built in small towns is not, as commonly supposed, the carpenter-contractor, but the building supply dealer.** Therefore, the sale of brick and tile in small towns depends to a very large extent on the attitude of the building supply dealer.

The Dealer's Attitude

To find out just what the dealer's attitude toward clay products is Brick and Clay Record recently sent a questionnaire to several hundred building supply dealers, the results of which were published in the March 20 issue. In addition to that a number of dealers in small towns were personally interviewed and the information obtained brought out conclusively that thru the help of the dealer the clay industry can increase sales in small towns tremendously. It is common knowledge that in the very small towns there are often as many as 25 or 30 frame houses to every brick or tile house built. And in practically every one of these small towns the building supply dealer is a lumber dealer who would prefer to sell his customers a wooden house rather than one built of brick or tile.

Certainly it is not logical to suppose that not more than

one person out of every 25 who builds himself a home is willing to pay from three to five hundred dollars more for a brick home than one of frame. There are other influences which divert his interest from brick or tile to frame and those influences are the building supply dealer for one, and the frame environment in which the small town citizen dwells. That is, all his neighbors' homes are frame buildings and therefore, he naturally thinks of frame when he decides to build his own house.

There is a town in Wisconsin called Reedsburg. It has a population of 3,000 served by two building supply dealers. Reedsburg has well paved brick streets, three brick churches, some brick schools and three or four brick houses. Outside of these and the stores on Main Street, practically every structure in the entire city is frame, including a number of schools, churches, warehouses and a good sized canning factory. And the reason for it is contained in the following interview with the manager of the Reedsburg Supply Co.

No Money in Clay Products

"How do you do? I'm from Brick and Clay Record. We want to find out how the dealer in the small town feels about handling clay products. You handle them, don't you?"

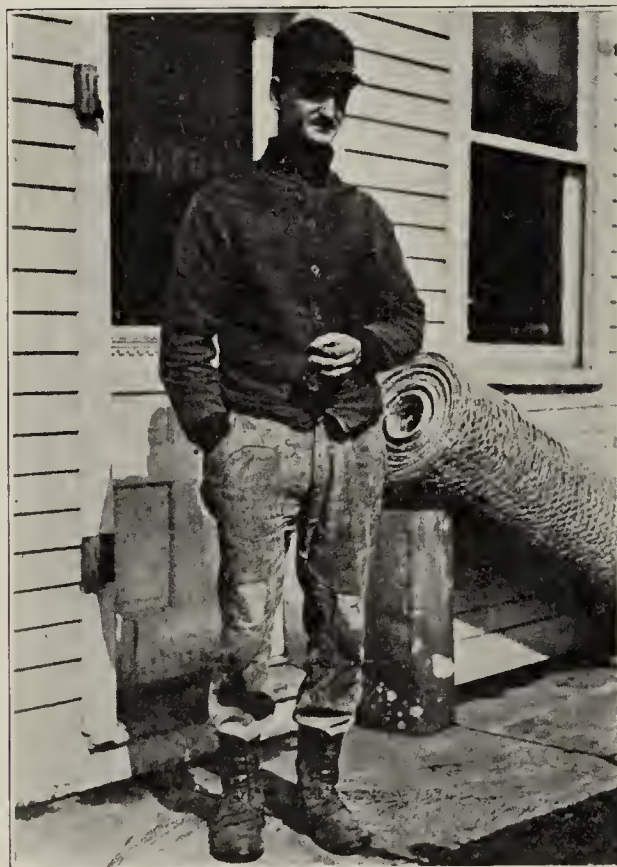
"We handle them, yes," said the manager diffidently.

"What is your attitude toward brick and tile? Would you just as soon sell them as you would lumber?"

"No! There is no money in that stuff. The only reason we carry them at all is to accommodate our customers."

"How is it that you can't make money on brick or tile," we asked him.

"Why, we can't charge enough to cover our expense in handling and a fair profit. If we add a fair percentage to



Here Are Two Dealers in Building Supplies, Who Also Handle Brick and Tile. The One on the Left Is Located in a Town of 464 Inhabitants and He Sells Annually 25 M Common Brick, 40 M Face Brick, 5 M Drain Tile and 25 M Sewer Pipe. And Yet, on Being Asked, He Said He Would Rather Sell a Frame House Than Brick.

The Other Dealer Serves a Town of 1,162 Inhabitants and Sells Annually 50 M Common Brick, 20 M Face Brick and One or Two Cars of Sewer Pipe. This Man Does Not Make Any Special Effort to Sell Clay Products.

How Many More Brick and Tile Would These Men Sell if They Were Genuinely Interested in Those Products?



¶ In Reedsburg, Wis., a farmer came to the building supply dealer one day with plans for a tile house. He wanted an estimate. The dealer submitted a figure on the house in frame and convinced his customer to build a wooden house. There has not been a brick house built in Reedsburg in ten years.

¶ The difference it makes to the clay products manufacturer whether a dealer is enthusiastic about brick or apathetic is well illustrated by the two Wisconsin towns, Baraboo and Kaukauna. Baraboo has a population of 5,500 and the biggest building supply dealer there sells about 50,000 face brick per year. This man is never particularly anxious to make a brick sale.

The Kaukauna dealer on the other hand, who is enthusiastic about brick and makes special efforts to sell it handled last year 300,000 face brick and expects to do as well or better this year. And Kaukauna has only 500 more people than Baraboo.

¶ Could a building supply dealer be expected to push brick sales when he must meet competition from jobbers who are able to purchase from manufacturers at a lower price and who underbid him to such an extent that brick becomes an unprofitable commodity to handle?

"But," says the manufacturer, "why worry about the dealer if the jobber can sell my brick?"

The answer is, "The jobber can not possibly know of all the homes that are being built and will be built. Whereas the dealer can influence each and every home because he is personally acquainted with the builder."

the price the manufacturers and their jobbers come into the market and sell at a price that we can't possibly meet and make money."

"Doesn't the manufacturer protect you on sales made in your territory?"

Manufacturer Does Not Protect

"Not at all. Here's an instance which will show you what we're up against when it comes to selling brick. Not long ago plans were drawn for a church and prices asked on brick. A brick jobber from La Crosse submitted a price which was later underbid by the manufacturer. Of course, when the manufacturer found it out the jobber had to withdraw his price. As a matter of fact, neither of them got the job, but I sold the brick for that church."

"But does that always happen?" the interviewer wanted to know.

"Why the whole system is wrong, all wrong. Do you know that there is a mason in town here who sells brick and tile to the farmers and people in town for their homes, chimneys, hog houses, chicken houses, silos and all that sort of thing? He hasn't any office, no overhead or carrying charges of any kind and builds the silo or whatever it is himself. If he makes 15 or 20 cents on the stuff he sells he's satisfied. Of course, we can't meet any such price."

"Then you would rather sell a man a frame house than brick or tile?"

Fights for Frame Against Tile

"Absolutely. I'll tell you something. A few weeks ago a farmer came in with plans for a tile house on which he wanted me to figure the material. I took the plans and figured on a frame house and when the farmer came back, I submitted the figures to him. With a little talking I soon convinced him and he walked out of this office perfectly content to build a frame house, altho he had originally decided to build of tile."

"Have you no difficulty with lumber and cement?"

"None whatever. The lumber and cement manufacturers protect us absolutely."

"Well, would you have any objections to selling clay products if you could make as much money on them as you do on frame?"

"Why, no. If the clay products manufacturer would allow us a fair differential and protect us on sales in our territory I'd be glad to advocate brick and tile houses."

Here then is a dealer who not only cares nothing about

selling clay products but will take every opportunity to boost frame in preference to brick or tile.

No Brick House Built in Ten Years

His competitor in the same town, a dealer firm of the name of Brittingham & Hixon, altho not so bitter toward brick and tile manufacturers, is nevertheless very indifferent towards clay products. He is indifferent because he doesn't make money on them.

"How many brick houses have been built in Reedsburg during recent years?" asked the interviewer.

"Let me see," — pondering over the question, "I don't remember any brick house being built in the last ten years. There is a man planning to build a brick house now and if he doesn't change his mind I'll probably furnish him the material for that."

What will these building supply dealers recommend when a customer comes in with plans for a house or other building? Will it be brick or tile? Or will it be frame?

As a whole building supply dealers are not averse to handling clay products provided they are assured of fair dealing and a reasonable profit. If they cannot get that they will continue to sell 25 frame houses to every one of brick or tile.

In many instances it is simply taken for granted that there is no money in clay products and the dealer does not even take the pains to investigate the

situation. This is the case in Baraboo, Wis., a city of over 5,500 inhabitants. Brick and Clay Record asked a dealer there about his profit on brick and tile.

"We make \$2 a thousand gross profit on brick but that hardly pays the expense of handling them," said the dealer.



This is W. W. Marling, Manager of the Marling Lumber Co., Wisconsin Rapids, Wis. He is one of the few small town dealers who prefers to sell a brick or tile house.

"Is there anything to prevent you from charging more for your brick?"

"Why, I don't know. Could we get more for them? I guess the reason we don't charge more is that we have never been used to making a good profit on brick and never really thought about it. I don't believe that we could charge, say 25 or 30 per cent. gross profit and get away with it."

"What do you mean by 'getting away with it'?"

"I mean the manufacturers and jobbers would step in and underbid our figures. Of course, on small jobs like chimneys, porches, and so forth, we get a better price than on the earload jobs. But then it naturally costs us more to handle them that way."

Most Brick Used in Chimneys

This dealer is the largest in Baraboo and sells annually less than 50 M face brick, 100 M common brick and no tile to speak of. The majority of these brick go into chimneys and occasionally a porch or foundation wall above the grade. This is the rule rather than the exception. Out of eight or ten dealers in small towns interviewed by Brick and Clay Record it developed in each instance that the large majority of the brick which they handled went into chimneys, porches and porch columns and some foundations above grade.

This is especially true of common brick. Very rarely does the man in a small town build himself a solid brick house. In fact a "brick house" in the country town means a face brick veneer and not a solid brick house. Probably not more than one out of every 50 houses in the towns and villages of less than 5,000 population are solid brick, or brick with tile backing. There are exceptions of course. In certain parts of the United States the percentage is higher than this.

Would Rather Sell Brick or Tile

Occasionally, however, there is found a dealer who believes in clay products and will speak for them even though he does not make the same amount of profit on brick and tile as he does on frame. Such a dealer is the Marling Lumber Co. at Wisconsin Rapids, Wis. This change of attitude immediately means increased sales. Although this city has less than 50 per cent. more people than Baraboo, the Marling Lumber Co. sells more than three times as many brick and tile as does the Baraboo dealer mentioned.

When asked how he felt toward selling clay products this dealer said: "I would rather sell a brick or tile house than frame because I believe it is a better house. We don't make quite as much money on brick houses because we've got to compete with the brick jobbers who try to cut under our price. Even at that we sometimes get a job when our price is higher than that of the jobber."

"Why is that?"

"The people know us and would rather do business with us."

"Suppose a man would come into your office and ask you what kind of material he should use for his home. What kind of building would you advise him to erect?"

"I'd tell him to use face brick and to back it up with hollow tile. Of course much would depend upon the amount of money the man had to put into the house."

"What, in your opinion, is the reason that people do not build more brick and tile homes?" he was asked. "Is it because they cost more than frame?"

Why People Don't Build of Brick

"No, I don't believe that is the chief reason. It's mainly because they have lived all their lives surrounded by frame houses; they seldom see brick or tile homes and so when the time comes that they want to build their own home, frame is naturally what they think of. Brick or tile doesn't enter into their calculations at all."

"Then what do you think the clay products manufacturers ought to do to sell more of their products?"

"They ought to put on an educational campaign to tell

folks about brick and tile. What people want to see is pictures and plans of real homes that have been built, not idealistic drawings and sketches of some architect's beautiful vision of a home. Why," he said, picking up a booklet put out by one of the clay products associations, "when I show my customers these books they look them over and say, 'This isn't what I want; show me something real, some real photographs, something that's been built, I don't want some architect's dream'."

Should Put Out Small House Plans

"The clay associations ought to spend the bulk of their advertising efforts and money on small houses, four and five rooms, because that's what most people want to build. People as a rule haven't very much money. A man wants to build a \$5,000 house and probably has \$2,000 to do it with. The rest has to be financed for him. Therefore, he usually builds his house as cheaply as possible and it is generally a small home.

"Another thing is this, the manufacturer ought to work with the building supply dealer and make it to his interest to sell brick or tile. Then, when a man comes to us with his plans we have a financial incentive to recommend clay products. Otherwise they would probably never be considered."

Dealer More Important Than Contractor

Much energy, effort and money is now being expended by the various clay products associations to overcome the so-called antagonism of the carpenter-contractor in the small town to a brick or tile building. According to an interview with a carpenter-contractor in Tomah, Wis., who had been building houses in small towns for 20 years, the contractor does not care particularly whether the house he is building has brick or frame side walls. If the walls are of brick, he hires the local brick mason or masons to build them for him and gets his percentage on their work just the same as he does on the carpentry. Then, too, probably 75 per cent. of the "brick" houses built are brick veneer and require exactly the same amount of studding, sheathing, and general carpentry work as a frame building. Practically the only thing which is saved is the weatherboarding.

While it is true the carpenter-contractor is a factor, yet, the greatest single influence in determining the kind of houses to be built in towns of less than 5,000 population, is the building supply dealer.

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STANDARDIZING SEWER AND DRAIN TILE

Manufacturers of sewer pipe and drain tile will meet at the Department of Commerce in Washington in the near future, probably on April 23, to discuss possible standardization of sizes and varieties. If the conference agrees a preliminary survey of the industry will be made and upon the basis of its report definite elimination of certain sizes and types of products may be accomplished at a later conference. The movement towards standardization in the clay products industry has developed from correspondence between William A. Durgin, chief of the Division of Simplified Practice, Department of Commerce, and George C. D. Lenth, Clay Products Association, Chicago; the Eastern Clay Products Association, Philadelphia; and Fred L. Dickey, general manager, W. S. Dickey Clay Manufacturing Co.

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STEEL RAISES WAGES 11 PER CENT.

Of interest to refractories manufacturers and in a general way to the entire clay industry, is the announcement that the United States Steel Corp. has increased wages about 11 per cent. In the past an increase in the wages of the United States Steel Corporation's employees has ultimately resulted in higher wages being paid labor in other industries. The clay industry, therefore, may look for higher wages.

Why Costs Run Low at Fiske & Co.

Author Bares Many Secrets About Systems and Equipment Used by a Small but Remarkably Efficient Factory

The plant described in this article is one of the plants owned by Fiske & Co., Inc., of Boston, Mass. C. Forrest Tefft, the author of the article, is a graduate from the New York School of Clayworking and Ceramics at Alfred, N. Y. He has been with the Fiske organization for the past nine years, first at the Ridgway, Pa., plant as ceramic engineer and superintendent, then as manager at Darlington for five years and at present as production manager of all plants. This article is the result of several efforts on the part of the editors of Brick & Clay Record, who have visited the plant, to get from Mr. Tefft, a story descriptive of the methods in use there, particularly in the drying and burning departments.



C. FORREST TEFFT

A STORY covering the equipment and methods used at the plant of the Darlington Clay Products Co., located at Darlington, Beaver County, Pennsylvania, will be interesting principally because of the drying and burning system which uses induced draft entirely and is, therefore, independent of weather conditions. This system is different from any other in use at the present time. However, since the entire plant is modern in its equipment, methods and management, a description beginning at the mine and ending at the storage sheds may prove interesting to Brick and Clay Record readers.

The Mine

The clay used in making the brick is a No. 2 fire clay called by the Pennsylvania State Geologist "Lower Kittanning Fire Clay." It has a melting point of 2,948 deg. F. This clay is mined from a drift in a hill about one-quarter of a mile from the plant.

Clay Drilling and Blasting

The drilling is done with an Ingersoll-Rand jackhammer operated with compressed air and a Jeffrey electric rotary

drill operated with direct current. Both drills are equipped with augers for drilling two inch diameter holes six feet in depth (Fig. 1 shows a view of both of these drills). The entire face of an entry or room is always drilled at one time, and to do this most satisfactorily it has been found that seven holes should be used for entry work and from nine to eleven holes for room work.

After all the holes have been drilled, loaded and tamped the three top holes have the fuse left extending about six to ten inches. The bottom and center holes are placed one above the other and each pair have their fuses tied together very close to the center hole. (Fig. 2 shows an entry ready for blasting.) The top holes are shot first and then the blaster goes back and lights the fuse for the rest of the holes. The fuse being tied nearest the center holes makes these go off first and very soon after the bottom charges go off. In this way a fairly uniform mixture of the clay from top to bottom is obtained when it is loaded into the cars.

Experience has shown that approximately 675 pounds of clay are obtained per foot of drilling in entries and 1,210



□ □ □

Fig. 1. The Two Men on the Left in This Picture Are Drilling Holes in the Fire Clay Mine with a Jackhammer Drill Operated by Compressed Air. The Two Men on the Right Are Using an Electric Drill

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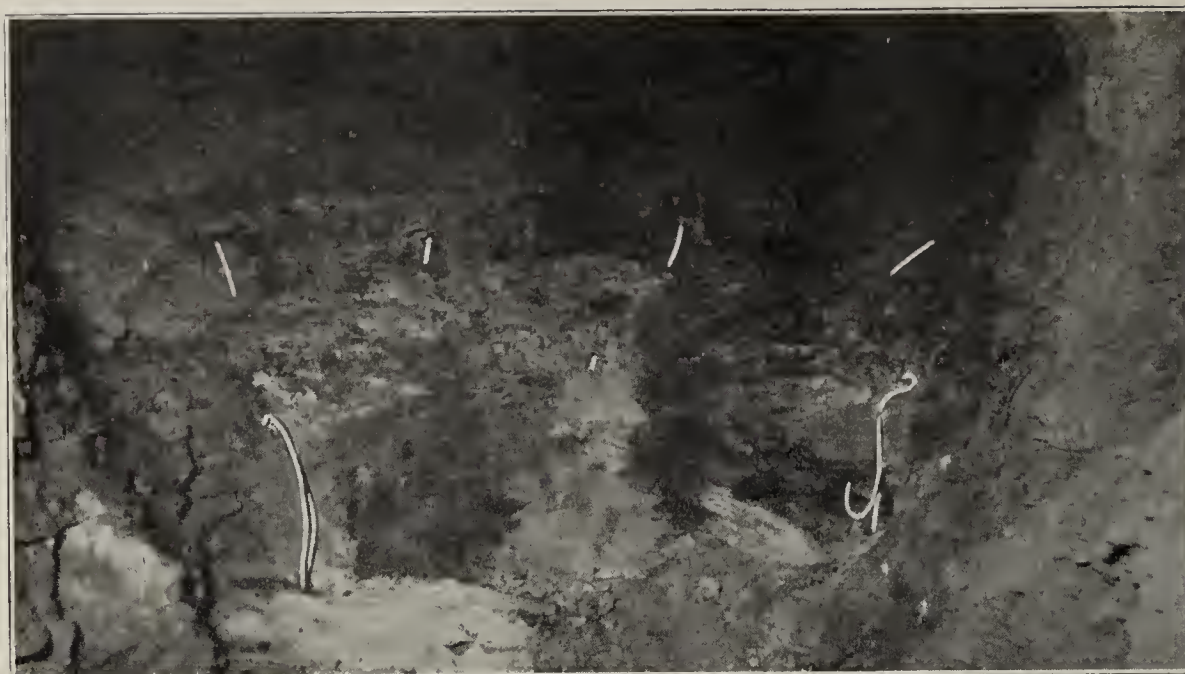


Fig. 2. After Drilling and Filling the Holes with Blasting Powder, the Top Holes Are Shot First. The Fuses of the Center and Bottom Holes Are Tied Together. They Are Lighted So That the Center Holes Explode First.

pounds in rooms. Entries are run eight to nine feet in width and rooms 16 feet as a maximum. The height varies from seven to ten feet. Either of the drills used would supply sufficient clay under normal conditions, but at present the mine is running considerable development work and is, therefore, pushing the mining of four entries.

If either drill should go down because of breakage the miners would immediately swing back to more room work where they get more clay per foot of drilling. It is not difficult to imagine the sense of security that one feels when having this much leeway in a mining operation.

Drainage

The drainage problem is not a serious one, altho it is necessary to use pumps for this work. Gravity drainage is in operation for about 2,400 feet along the two main entries, making it unnecessary to pump for any great distance. The pumps used are of the centrifugal type, having a capacity of

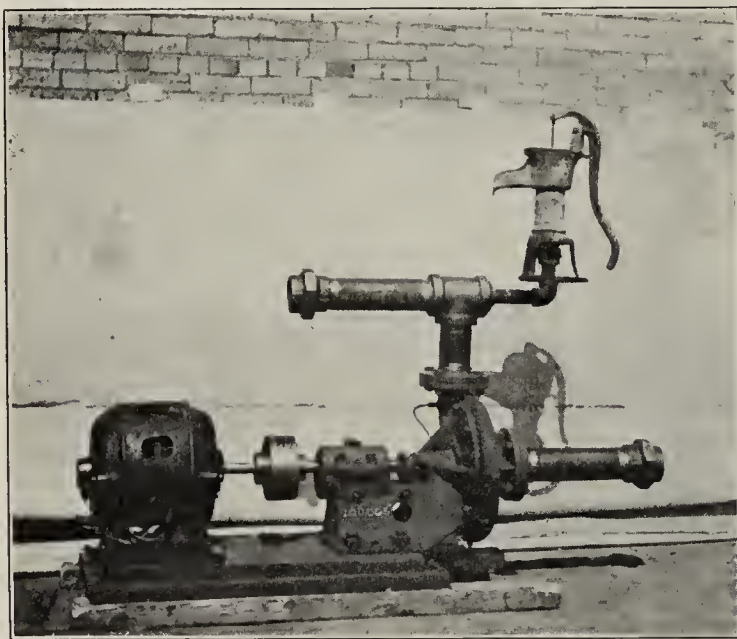


Fig. 3. This Mine Pump Which Is Connected Directly to Motor by Flexible Coupling Has an Actual Capacity of 250 Gallons Per Minute. The Text Describes Its Particular Advantages

250 gallons per minute, and are direct connected by a flexible coupling to a five horse power A. C. motor with a speed of 1,800 r.p.m.

This method of driving is certainly a great improvement over the belted drive formerly used, as the car upon which

the equipment is mounted is handled in various parts of the mine and is not easily leveled. Because of this and also the necessity of having very short shaft centers a belt would always give considerable trouble in running off its pulleys. Fig. 3 shows a view of one of these before being mounted on the car from the mine. This view also shows the small pitcher pump for priming.

Ventilation

A Sturtevant steel plate fan driven by a $7\frac{1}{2}$ horse power motor furnishes air thruout the entire mine. In development work parallel entries are run 100 feet apart. These are connected every 200 feet so that the workmen are never more than 250 feet ahead of the "air."

Roof Supporting

Immediately above the clay seam there is a vein of good quality coal running from 26 to 30 inches in thickness. This coal makes an excellent roof for the mine and little posting is required where it is left in position. Where a room has been exhausted of its clay and the pillars drawn, the coal is dropped and loaded into the regular clay cars for hauling out of the mine. After the coal has been removed the roof above is very treacherous and does not stand for more than a few days.

Supervision

In addition to the plant superintendent, there is an experienced mine foreman, who is in constant charge of the mine work. There is also an experienced mining engineer, making regular monthly check-ups on all new work and keeping the map up to date. The method of mining has been laid out for years to come and this plan is being followed constantly.

It has been necessary to deviate from the plan at times, but no change is made without the sanction of the consulting engineer and others who are connected with the plant management.

Haulage

This story would not be complete without showing the efficient method of haulage. Fig. 4 shows this equipment when the motor is idling.

Handling of Clay

The level of the mine is approximately 20 feet above the foot of the hill and this has been taken advantage of in building a tippie. This building contains a pair of track scales for weighing the cars of clay, as all loading is done by piecework based on the tonnage handled. After weighing,

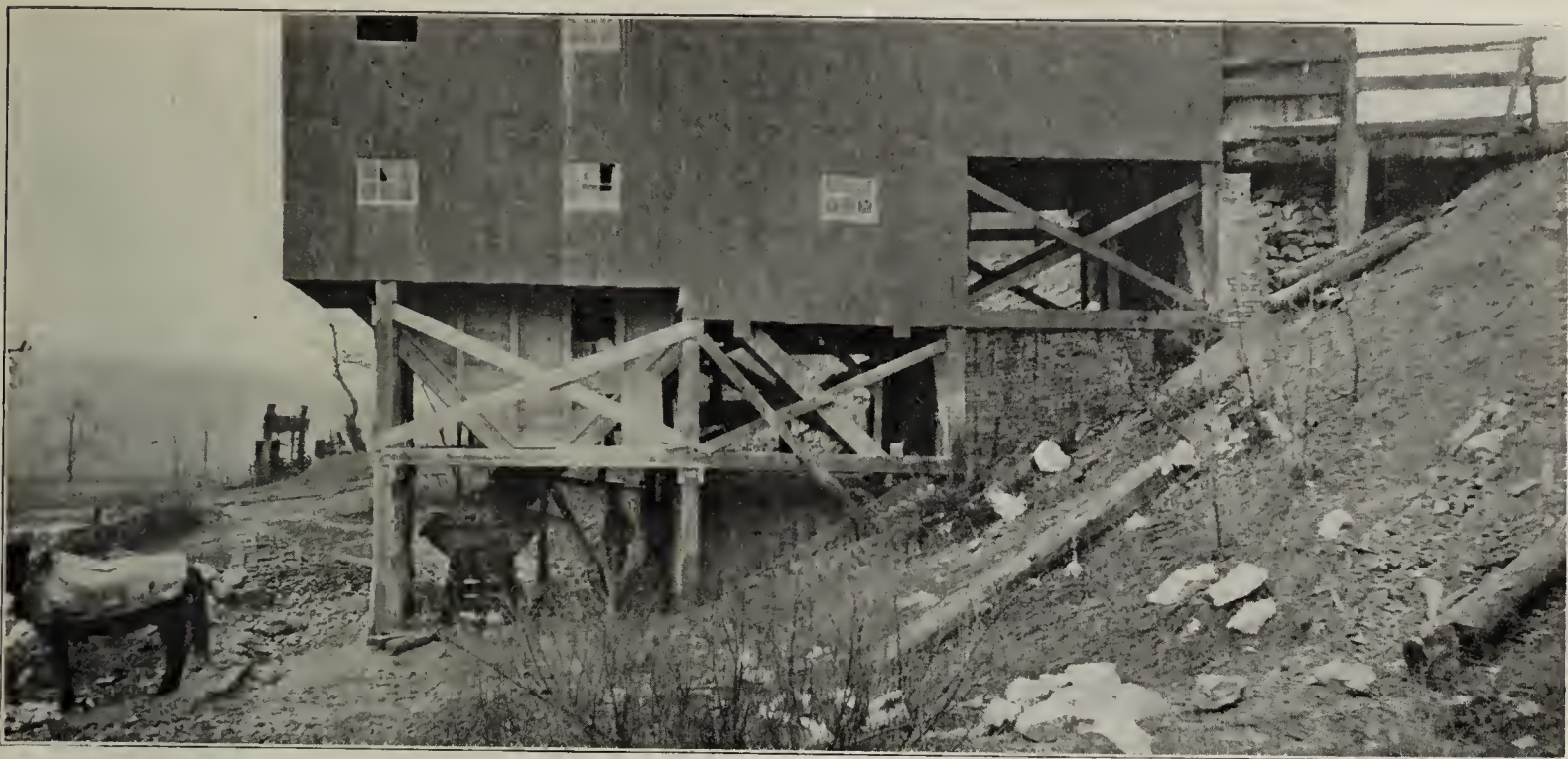


Fig. 5. This View Shows the Mine Tipple and Clay Bin. The Workman Has Just Closed the Hopper Gate Over One of the Clay Cars. This Car Loaded with Crushed Clay Will Be Hauled to the Plant

the cars are run on a cradle that dumps the clay into a single roll crusher, which is driven by a 25 horse power A. C. motor. This crusher is a remarkable machine, as the clay is very hard and it is actually possible to see fire fly from the clay as it is being crushed. The writer has yet to see a machine of this type doing the heavy work that is required of this one.

The clay falls from the crusher into a self-emptying bin of approximately 15 tons capacity. This bin (Fig. 5) is equipped with an easily operated discharging gate and the clay goes by gravity into $1\frac{1}{2}$ yard V dump cars that are hauled to the plant by horse power. Here a cable is attached and they are pulled up an incline and into the clay storage shed on an elevated track about ten feet above the floor.

The Clay Storage Shed

This shed has a capacity of approximately one week's run. It is 85 feet long by 21 feet wide and is divided into two sections by a system of reclaiming conveyors. The advantage of this is that one-half can be in process of filling while the other is being emptied and neither operation interferes with the other. It is also possible to get a much more uniform mixture—a feature that should not be overlooked on many plants.

The mixing is accomplished by dumping the clay at various positions along the length of the shed so that the storage pile is built up in fairly uniform layers. In reclaiming the clay the operator rakes it down onto a conveyor and in this way the pile is practically taken away in layers at right angles to the original layers.

The two reclaiming conveyors are located in a trough directly under the center of the clay pile and are arranged to feed onto an inclined conveyor at right angles to them. This third belt carries the clay to the dry pan. All of this conveying equipment is driven from the pan shaft in a rather unusual way, in that the inclined conveyor, which is 40 feet long, acts as a power transmission belt as well as a conveyor.

The tail shaft of this belt is extended beyond the bearings just far enough to take mitre gears which mesh with other gears on short jack shafts. These short shafts are, of course, parallel to the shafts carrying the head pulleys of the horizontal conveyors and are connected with them by means of sprockets and chains. Fig. 6 shows this arrangement quite clearly.

This entire equipment was completely rebuilt about six

years ago, and since that time there has been no trouble with it. We have not even replaced a belt, even tho, in order to keep clay from falling off the belts, they are running in solid wooden troughs. This long, satisfactory life must be due to the fact that plenty of room has been provided underneath the belts for the operator to give proper care in cleaning and oiling.

Grinding and Screening

The grinding equipment consists of only one nine foot dry pan. This machine is actually putting out 12 tons per hour of ground clay screened to 16 mesh—a most excellent production considering the nature of the clay. It is believed that the uniform feeding made possible by the conveying system described has a great deal to do with this output, but without question a careful, intelligent man who understands the operation of a pan is just as necessary as a good feeding system.

It is well recognized that a dry pan has one of the hardest jobs on a brick plant, but all of the wearing and breakable parts of our dry pan are readily accessible and are therefore quickly renewed. A complete line of such parts as this is always carried in stock, as it is much less expensive than having to accept long shutdowns waiting for parts. The power used for operating the dry pan and conveying system is furnished by a 75 horse power Burke electric motor of the alternating current type.

Screening

The clay is fed by gravity to the elevator that carries it to a Tyler mechanically vibrated screen having 2 sections of wire



Fig. 4. A Reliable "Locomotive" for Clay Mine Work Is Jack

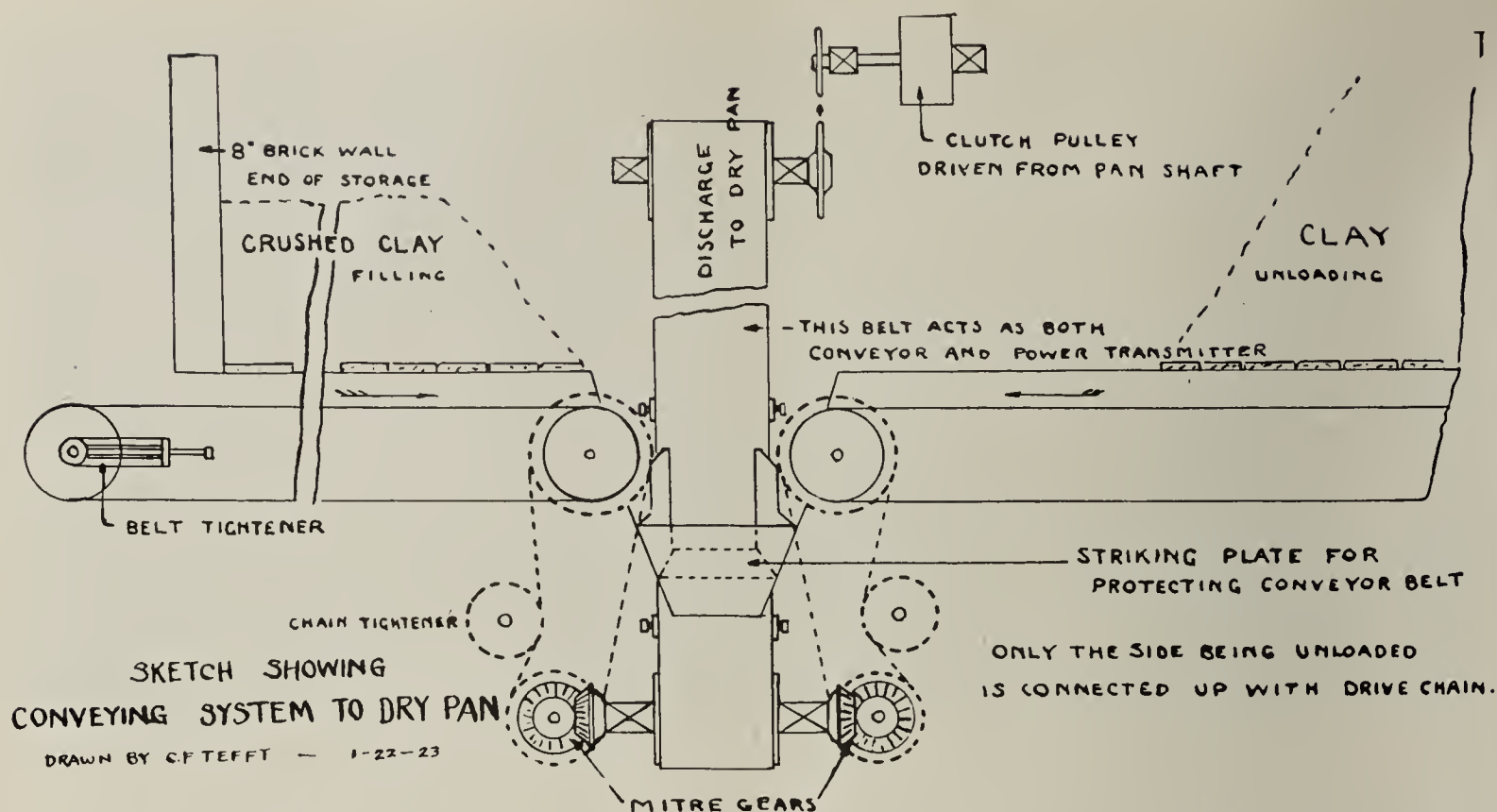


Fig. 6. Sketch Showing the Unusual Arrangement of Conveying System to Dry Pan. All of This Conveying Equipment Is Driven from Pan Shaft. The Tail Shaft of Conveying Belt Is Extended Beyond the Bearings Just Far Enough to Take Mitre Gears Which Mesh with Other Gears on Short Jack Shafts. These Short Shafts Are Parallel to Shafts Carrying Head Pulleys of Horizontal Conveyors and Are Connected with Them by Sprocket and Chains

cloth each three feet by five feet, making a total effective screening surface of 30 square feet. Each section of the screen is fitted with two posts that extend upward thru the screen cover. These posts are tapped with hammers—456 taps per minute on each post or 1,824 taps each minute on the whole screen. This machine is very satisfactory in separating the majority of the fines from the tailings. Both the elevator and screen vibrating mechanism are driven by a 15 horse power Burke A. C. motor.

One of the difficulties of operation that has given plenty of chance for experiment is due to the extremely abrasive nature of the clay and, consequently, the very rapid wearing of the tailings spout from screen to dry pan. Many kinds of lining have been tried in this chute, but nothing has been found more satisfactory than special shapes made to fit the chute from this same clay. When the shapes are burned until thoroly vitrified they will wear very satisfactorily.

Ground Clay Storage

When the clay leaves the screen it runs into a storage bin of sufficient capacity to hold one-half day's run. This is the only elasticity between the brick machine and grinding equipment, but it has proven ample in most cases because of the stock of dry pan parts. It is always possible to grind overtime or at any time, regardless of whether the balance of the machinery is running or not, because of the independent drives on the grinding equipment. An effort is made to keep this ground clay storage bin full at all times.

Mixing Clay and Manganese

At the bottom of the bin there is installed the first Poidometer built by the Schaffer Engineering & Equipment Co. This machine is equipped to weigh and deliver to a chute a definite predetermined quantity of two different kinds of material at the same time. In the manufacture of gray manganese brick it is necessary to mix manganese with the clay and this is where the proportioning is done. This machine is accurate in its weighing of both the clay and manganese and it has helped a great deal toward making the brick from this plant a uniformly high grade product.

There is, of course, a very small percentage of manganese used in a gray brick, and because of this the Poidometer belts have different speeds—the clay belt running 20 feet per minute while the manganese belt runs only one foot per minute. The amount of clay or manganese carried per foot of belt is regulated by setting the gate from the bin to a definite height. Once set the machine is so built that it automatically opens and closes the gate to get the finer adjustment necessary to keep the supply accurate.

Mixing Clay and Manganese

If it is desired to make straight clay brick without any manganese the belt weighing this material is cut out of service by means of a clutch and only the clay belt is operated. The mixture of clay and manganese (or clay alone) passes from the chute to a bucket elevator that carries it to the pug-mill. The elevator is high enough so that there is an opportunity to pass the clay thru a chute approximately six feet long before it reaches the pug-mill. The reason for this is that the manganese and clay must be thoroly mixed while dry and this is partly done by means of baffles in the chute that force the material from one side of the chute to the other and in doing this a blending of the two materials is accomplished.

This ends the first section. The second section of this article begins at the pug-mill and takes you thru the burning and drying methods of this plant which is the feature part of the story. Induced draft is used in burning in the round down-draft kilns and the combustion gases are taken thru the dryer but do not come into contact with the ware. This is the only installation of its kind in the country and its description should be of immense interest. This will appear in next issue.

IDEAL WALL STANDS REMARKABLE TESTS

A startling discovery has been made by the U. S. Bureau of Standards which may prove an epoch-making event in the effort of brick manufacturers toward producing homes of lower cost. A test structure of the new Ideal hollow wall—the low cost wall developed by the Common Brick Manufacturers' Association—subjected to a severe fire test made by the Bureau has come thru with flying colors. The test structure is still standing in the grounds of the Bureau at Washington for any one to see.

A small building was specially constructed for the test with Ideal walls eight inches thick, and the interior filled with discarded wooden furniture. Everything combustible within the building was completely destroyed, but the brick-work showed no ill effects whatever.

Not only has this wall done remarkably well in the fire tests, but its ability to withstand heavy loads has startled the entire building industry. With a load applied slightly to one side of the center of the wall, simulating the loading of a wall in an actual building, the Ideal wall eight inches thick proved to be 24 per cent. stronger than a solid wall of the same thickness, according to Dr. A. H. Stang of the U. S. Bureau of Standards—where strength tests were recently made also on this type of construction. Dr. Stang described the results before the recent convention of the common brick industry of the country.

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MAY FORM COMPANY IN NORTON, VA.

L. A. Ballenby has announced that he is interested in organizing a company at Norton, Va., to manufacture brick.

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IMPORTING BRICK FROM HOLLAND

Two cargoes of about 1,500,000 Holland-made brick have arrived and already been delivered to builders of New York City. This is a small part of the 50,000,000 brick that are on their way from Rotterdam to New York. It has been learned that this brick is successfully competing with the domestic brick. However, a provision of the law provides that each of these imported brick will be stamped "Made in Holland." Some of this country's oldest buildings have been built of brick shipped from Holland, altho the importation of this product has not been carried on to any great extent in the past years. This is from an unconfirmed report.

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PROOF OF BRICK'S SUPREMACY

One of the best proofs of the superior merits of brick construction as compared with other kinds of building work, and one which the brick manufacturer can use to tremendous advantage in publicity to further his own business, presently will emanate from the headquarters of the Common Brick Manufacturers' Association of America at Cleveland, Ohio. This is the publication of material showing the strength of the brick work. It is a report made by Rudolph P. Miller, consulting engineer, and former superintendent of buildings of the City of New York, on tests which he had made at Columbia University, New York City, on some of the brick work that had been taken from a structure which was being demolished. The first impression these tests offered was the enormous strength of this old brick work which had been built, of course, without any thought that at some future date it might be subjected to a test such as has just been made.

In the material that presently will be distributed to members of the Common Brick Manufacturers' Association, Mr. Miller discusses the tests and their results, and compares them with the results of the tests made on specimens of brick work made especially for testing purposes.

Incidentally, part of the report contains excerpts from the Brick and Clay Record of the opinions of A. H. Stang, P. H. D., of the United States Bureau of Standards, on the comparative strength of solid brick walls and the ideal type of brick construction.

The material is contained in eight pages of interesting as well as instructive matter, which will be distributed to members at a cost slightly below that of the actual printing, it is understood.

Among the particularly illuminating data is that contained on the page, whereon is graphically shown the average strength of a brick pier, 16 inches by 12 inches and two feet high, which supported at failure a load equivalent to a solid brick wall 1 foot wide, 20 feet long and 125 feet high.

* * *

RAILWAYS PLAN BETTER TRANSPORTATION

At a meeting of the member roads of the American Railway Association at New York, April 5, a program was adopted and approved by the Association of Railway Executives which in effect is a resolution on the part of the railroads to bring their equipment into the best possible condition at the time of heaviest shipments.

The program adopted requires that by October 1, 1923, cars awaiting repairs be reduced to the normal basis of five per cent. of the total equipment, and locomotives awaiting heavy repairs be reduced to 15 per cent. Storage of coal for railroad use will be completed by September 1 so that transportation facilities may be used to the greatest extent for commercial coal necessities. An effort will also be made to bring about prosecution of road and building construction work as early in the season as possible in order that equipment may be available for a larger movement of seasonal commodities.

It is urged that cars be loaded to maximum capacity, that they be unloaded promptly and, where necessary, storage facilities be increased to expedite loading and unloading. Every possible means will be adopted and the cooperation of all shippers asked to increase the mileage per car per day to an average of 30 for the entire country.

The program was adopted in anticipation of the greatest volume of freight traffic in the history of the railroads.

* * *

NEW BOOK ISSUED ON ZIRCONIUM

"Zirconium and Its Compounds" is the title of a publication issued by the Chemical Catalog Co. and written by Frances P. Venable. The first chapter of this book deals with the history and occurrence of zirconium and other chapters deal with its compounds with other elements, including compounds with acids in a silicon group. Other chapters refer to the technical application of zirconium and its compounds, and a bibliography is given of articles on zirconium and its relation to the glass, enamels and refractories industries. This book may be obtained thru the publishers or thru Brick and Clay Record at \$2.50.

* * *

81% INCREASE IN LIMESTONE PRODUCTION

The limestone sold for building stone from quarries in the Bedford-Bloomington district, Lawrence and Monroe Counties, Ind., in 1922 amounted to 9,616,670 cubic feet, the largest output since 1912. The great demand for this stone in 1922 is reflected in a gain of 81 per cent. over the quantity sold in 1921, and orders ahead for shipments in 1923 indicate that unless unexpected conditions arise the output for this year will be equal to or greater than that in 1922. The total value of the stone sold in 1922 was \$11,288,823. These figures are made public from reports by the quarrymen and mill operators in the district to the Dept. of the Interior.

Why Dealer Distribution Pays

Tells Experiences of Firm Who Tried
Direct Selling and Turned to Dealer—
How Dealer Can Help Clay Products Sales

Harry Botsford

Formerly with Dodge Sales & Engineering Co., Mishawaka, Ind.

IT IS the honest opinion of the writer that the average brick or clay products manufacturer can profitably secure and maintain distribution of his products thru building supply dealers. In making this statement, it is realized that many of the brick and clay manufacturers will take decided exception to the opinion expressed. Knowing this, the writer makes the statement only with the reservation that it is based on his own merchandising experience and his personal knowledge of the industry in question.

In considering the present situation of distribution in these lines I am strongly reminded of a similar situation which existed a number of years ago in an industry with which I was intimately connected. This particular industry was the power transmission business—the manufacturing and distributing end of pulleys, hangers, bearings, gearing, couplings, clutches, and so forth.

Mixed Dealer and Direct Method

The concern with which I was connected in an executive capacity was—and still is—the largest in the field. At the time of which I write their distribution was based on a peculiar mixture of dealer and direct methods. Dealers—about 300 of them—were distributed in every industrial field. A certain stockage was required of each dealer, who, as a general rule, carried other lines; either he was a mill supply dealer or a hardware merchant. Sales were never solid or substantial in any way.

Each year we used a goodly advertising appropriation which accomplished nothing for the dealer. I say nothing but I use the word advisedly. The advertising centered, rather, on the ability of our organization to furnish the complete power transmission requirements in any type of factory. Naturally, we boosted our own engineering facilities and solicited direct inquiries. This happened with great regularity. In the city of Blankville, let us say, a canning factory was in process of building. They wrote the home office for information and engineering advice. A salesman from the home office rushed to Blankville, gave the engineering advice and sold the complete line of goods. Meantime our dealer in Blankville tried to get the business and found we already had it sold. In other words, we were in competition with ourselves! And when the dealer found he could not sell the goods and when he found we refused, point-blank, to give him any share of the profit of the sale, he was peeved—and with good reason. So long as this was our practice, our dealer distribution was nothing to boast about from the standpoint of loyalty. There was no incentive whatever, for the dealer to boost our line or carry a decent stock.

Launch Drive to Secure Dealers

Then one day a decision was reached in the home office. It was decided—after a great deal of argument and discussion, I will admit—to go after dealer distribution and to make it the basis of our selling. At this time, our annual sales sheet showed that 80 per cent. of our sales were made direct from the home office and that 20 per cent. were made thru dealers.

A determined drive to secure new dealers and to inspire loyalty in the old ones was launched. This campaign which took several forms told dealers that our advertising in the

future was to advertise the quality of our goods but to attach to every advertisement this message, "Buy from your local dealer—we prefer it." This, we argued, would build up dealer-demand, and if the dealer was sincere in his purpose and his intention to represent us fully, he would have to carry in stock an ample supply of our goods—otherwise, our advertising would not be of value, for its purpose was to instill in the consumer's mind the fact that he could secure transmission service and supplies from the local dealer. The dealers saw the soundness of the argument and signed new agreements.

Dealers Put Sales Campaign Over

To make a long story short, the plan succeeded in a big way, in every respect. It emptied our warehouse; it gave the consumer convenient and efficient service; it gave the dealer a bigger volume of business and a larger turnover on his stock of power transmission machinery; it increased our volume of sales to a peak-point. By really representing us the dealer made more money on our line than he had believed possible, and when we showed him a cooperative plan whereby he dug up new and big business, where our salesmen and engineers handled the entire proposition and where he secured a split on the profit, **he got business for us.**

The condition which did exist in the power transmission business was similar to the condition which exists today in the brick and clay fields; the condition which exists today, for this particular concern, is a situation which can exist in the brick and clay fields.

Sell the Dealer Profits

It would only be fair, I believe, to assume that the average building supply dealer is a business man. As an average business man he is alive to the fact that he cannot afford not to carry in stock goods for which a demand exists. That, I take it, is granted. When you attempt to sell him your line of goods are you going to sell him so many thousand brick or joints of sewer pipe? or are you going to take the more sensible plan and sell him profits? Remember, he lives on profit! Therefore, in some cases, you will have to increase the profit which he will make on your goods.

The average building supply dealer, I have found, is an aggressive merchant in the lines which he already handles. This aggression is very largely due to the method in which his goods are sold to him. He is shown that a certain consumer-demand is being created thru some national advertising or thru other means. The salesman who sells him tells him the success other building supply dealers have had in selling the line. The concern from which he buys keeps him sold on the goods by a house-organ service or frequent bulletins showing him new uses of the goods or other fields which he can cultivate profitably.

Help the Dealer to Sell

Can the brick or clay manufacturers do this? Why not? You make a good product—if you don't you shouldn't be in business. You are very proud of that product and you know every use to which that product can be put. Very well, why not pass that information along to your local dealer? Help

him to sell by showing him where to sell. That is a fundamental of dealer distribution which cannot very well be overlooked.

If you are a tile manufacturer, show your dealer the big market which exists for drain tile in the farm fields; tell him how to go after the farm business and how to show the farmer how he can use tile profitably to drain unproductive but rich farm lands. Here is a field which in most cases is almost untouched and which has great possibilities.

Big Field for Hollow Tile

And hollow building tile! Year after year sees it coming into greater use and if it were sold entirely by live dealers its use would grow by leaps and bounds—it's all a question of coaching the dealer. Show him the utility of the hollow building tile; how it can be used for various purposes and the field which exists right under his nose—Do that and I am convinced he will stock it—and sell it, too. The same is true of face brick, fire brick and architectural terra cotta.

How much business do you estimate you lose each year simply because you never hear of it until it is too late to go after it? That total is a matter of pure guesswork but it is very natural to assume that the volume is high. With efficient dealer-distribution and the right kind of a franchise you would, at least, have an opportunity of trying for this business.

Takes Business from Brick

How many wooden buildings are erected each year that could have been made of brick? Still more guesswork, but I believe, in general, it works out just as it has in my own city. A new church was to be built. There was a fund of \$16,500 available and the committee was headed by the local building supply dealer who is a member of the congregation. When the question of building material came up for discussion he effectively killed every suggestion advanced toward brick. I do not know what arguments he advanced, but I do know the church is being built of wood and that the lumber is being bought from the local dealer. In some respects, this same thing is happening in every town, in every city in this entire country.

The advantages of dealer distribution, as I view it, are not confined entirely to the value of getting all of the business and securing local distribution. Selling thru reputable building supply dealers lessens your record-keeping and centers financial obligation on an individual or a concern whose rating is firmly established. That, in itself, is a big item. Thanks to his experience as a retailer who represents large concerns, the building supply dealer has been educated to respect his discounts and to take advantage of them. Here and there, of course, it will be found necessary to advance long terms to isolated dealers and it would, I believe, be good business to do this if the circumstances warranted it. But as a rule, the dealer can be sold stockage of considerable size if he is convinced that a demand will exist or that a demand can be stimulated.

Advertising Should Include Dealer

Here is still another advantage to be given solemn and careful consideration. Dealer distribution must, naturally, be backed by advertising on the part of the manufacturer—advertising which will cause the prospect to turn to the local dealer. An intelligently planned advertising campaign of this nature is a part of your merchandising plan, let us assume. The possibilities of such a campaign in stimulating consumer-demand cannot be overestimated—but it has still another angle which should be carefully considered. If you spend, say, an appropriation of \$30,000 for your campaign, you can, if you go about it properly, induce the dealer to cash in on that campaign and as a group make them spend as much as you do. In other words it is possible for you to secure

\$60,000 worth of value from an appropriation of only \$30,000. This is not impossible and it is not a theory by any means. It has been done before in many fields. Your salesmen, if they are the right kind, can accomplish this. They can take the campaign to the dealer and say, "Here is our campaign—you can see that it is bound to increase local demand to some extent. We are using the magazines to do this and all we can say to the consumer or prospect is 'There is a local dealer in your city—buy from him.' It's up to you to cash in on this by using space in your local papers and telling the people that they can buy it from you. If you wish we will furnish you with cuts, electros and mats in any sizes you wish to use." That is the gist of the argument which has been successfully used before—dress up that argument to fit your own case and there is no reason in the world why your national advertising cannot be forced to do double duty.

Cooperation of Greatest Importance

The argument has been advanced that the dealer merely gets the crumbs from the table of big business—that he has not the ability nor the selling knowledge to get big business. That is true in almost every respect but even at that he can be used to secure big business. Suppose that a part of your merchandising contract with a building supply dealer related to big jobs which he could dig up but which he felt he could not land without help—suppose there was a clause in the contract which would give him a certain profit on business of this nature? How would it work out for all concerned?

Suppose a municipal building of some nature was about to be erected—say a school house. Your local dealer sends in an S. O. S. to the home office "Big job contemplated. Need help." Forthwith a salesman equipped with the right tools takes the next train to the dealer's home town. He goes to his office and the dealer tells him his story. The dealer knows, very well, the powers that be—he is a citizen, a tax payer and as such he has the inside track. He will approach the powers that be with the home-office man on a better footing than a salesman not locally represented. Under normal circumstances if several salesmen not represented and assisted by local dealers are on the job in competition with the local dealer and the home-office man and if prices are about the same and if quality and delivery items are similar, the chances are 100 to 1 that the local dealer and the home-office man will walk away with the business. The local dealer can pull strings which will put the contract over and every string which he pulls will be a legitimate one, based on the fact that the business should be kept at home and given to a local tax payer, citizen and business man. This plan has proven successful in the power transmission business; it is constantly being used in the insurance field—the highest competitive field which exists today. It would work out very well in the brick and clay field, I am sure. The additional volume of business secured by this plan, alone, would show the real value of dealer representation.

100 Per Cent. Distribution Necessary

These are a few of the reasons why the writer is so firmly convinced that dealer distribution is economical, profitable and sound in every way. Show the dealer a profit, help him sell and volume is bound to result. Advertise in such a manner that the public will be sold on the fact that supplies can be secured locally and then insist on dealers carrying a decent stockage and business will inevitably result. To do this, however, requires 100 per cent. dealer distribution, which is the only representation worth a nickel.

Making a distinct change in distribution methods is an act which involves a tremendous volume of work, close attention to detail and it should be undertaken seriously and only after solemn and even prayerful consideration, for the prosperity of your business is definitely linked with your methods of distribution.

REFRACTORIES ACCOUNTANTS TO MEET

On April 23 and 24, 1923, the Refractories Accountants Institute will hold its annual meeting at which directors will be elected. The meeting will be held in Columbus, Ohio. A very able and well-known outside speaker has been procured for this meeting in the person of Gould L. Harris of New York, assistant secretary of the National Association of Cost Accountants. Mr. Harris will speak after the luncheon on April 23. The rest of the program includes an address by chairman, R. E. Byrne; a talk on "Overhead" by W. J. Westphalen; "Monthly Profit and Loss Statements" by H. L.

Grohne; "Factory Labor Costs" by R. E. Byrne; "Depreciation and Obsolescence" by M. D. Worthington; "Raw Material Costs" and "Mining Labor" by F. W. Neuroth. In addition to these, special questions submitted by the members will be discussed.

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DEFIANCE GETS NEW COMPANY

The Defiance (Ohio) Brick & Tile Co., has been chartered with a capital of \$10,000 to manufacture brick and drain tile, a report states. The incorporators are Jacob Molly, Rebecca Davis, John W. Winer, M. A. Goller and Beatrice Steffel.



Kentucky Men Adopt Slogan from Brick and Clay Record

ABOUT 15 brick and clay men were present at the annual meeting of the Kentucky Clay Products Association, held at the Watterson Hotel, Louisville, on April 10, 1923. There was a morning session, devoted almost exclusively to discussion of traffic matters and routine business, a luncheon at noon, and a business meeting and open discussion in the afternoon.

The freight rate discussions of the morning session proved quite interesting, and B. A. Word, an independent traffic expert of Louisville, who represents some of the individual members in handling their traffic matters, discussed the various changes in brick and clay products rates which are under consideration at this time. As a result of this discussion it was decided that resolutions would be drafted, and submitted to the Southern Freight Rate Committee, Atlanta, Ga., outlining the view of the Kentucky association members on brick and clay products rates and proposed adjustments.

Business Is Active

Reports from the individual members showed that there is very little surplus stock available at any point in the state. Most of the companies are well sold up on stock in hand, and many have orders on hand that will take a considerable part of their production over the next several months.

As traffic matters today represent the bulk of the work that is being handled by the organization, it was decided to appoint a special traffic committee, instead of leaving such work to the Executive Committee. James T. Howington, of the Coral Ridge Clay Products Co., Louisville, who has been leading the traffic movement, was appointed chairman of this committee. T. Bishop, of the Southern Brick & Tile Co., Louisville, and M. J. Bannon, of the P. Bannon Pipe Co., Louisville, are the other members. Mr. Bishop is associated with the Klucmeyer-Klutey interests.

Re-elect Old Officers

The old officers were re-elected as follows: F. C. Klutey, Henderson, president; A. H. Schneider, Nicholasville, vice-president; T. Bishop, Louisville, treasurer; J. Crow Taylor, Louisville, secretary. George C. Carey, of Lexington, was added to the Board of Directors, replacing H. C. Cramer, Lexington, who quit the brick business some time ago. T. M. Dalton, of Hopkinsville, was elected to the board to succeed his late brother, George H. Dalton. The other directors are W. H. Hall, Maysville; Frank P. Hill, Paducah; J. H. Clark, Owensboro; H. C. Kleymeyer, Evansville; J. T. Howington, Louisville; M. J. Bannon, Louisville, and L. Ruby, Providence.

J. Crow Taylor, of Louisville, who has been serving as secretary of the organization, without compensation, was voted a salary of a half million per year, to be paid in German

Marks, which have an equivalent value of \$25 on the present market, provided the figuring of Jim Howington and T. Bishop is correct.

Adopt New Slogan

For some years past the association has been using a slogan on its letter head "Build with Fire Resisting Materials," but is planning adoption of a new slogan, devoted to burned clay products, one that was advocated by the Brick and Clay Record a few years ago, and which was suggested to the association by Mr. Howington. This slogan is, "By Frost, nor Fire, nor Flood, nor Even Time Is Well Burned Clay Destroyed."

Some interesting discussion arose concerning the use of oil burning equipment for brick manufacturing. The Louisville Pottery Co., has been burning oil for some time, and has found that it materially saves in labor, means more uniform burning, and has proven very satisfactory. It was reported that the Lexington Brick Co., has been using oil of late. James T. Howington stated that he had been considering oil, and had taken the matter up a couple of times with the Standard Oil Co. interests, but had received no encouragement. Mr. Howington figures that it would cost about \$10,000 to equip his plant for burning oil, but figures that the saving in labor, along with a better and more uniform burn, would result in a larger percentage of good face brick and better profits as a whole.

Plan Greater Group Activity

Discussion brought up on the amount of frame building that is now being done, including some very attractive better priced houses, showed that much of this is due to the active work of lumber companies in supplying free plans. It was reported that one lumber company in Louisville employs about ten architects and draftsmen, and not only supplies standard plans, but will draft special plans. Naturally they are not specifying any more brick than is essential, and where brick is used in residence work, it is generally only a veneer proposition.

Considerable discussion was heard concerning group meetings, and also in connection with getting the fire brick interests to affiliate. Louisville today has a brick men's club which is meeting weekly, and which comprises group one. A second group is needed in central and eastern Kentucky, which could rotate about, meeting in the various cities, while other groups are needed in the Paducah district, and in the Henderson-Owensboro district, the latter taking in Evansville as well.

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FORM BAKER B. AND T. CO.

Baker Brick & Tile Co., Ltd., Victoria, has been incorporated with a capital of \$75,000 to take over the brick and tile manufacturing business of Baker Brick & Tile Co.

1921 Clay Products Output Drops

\$278,546,800 Is Value of All Clay Products Manufactured—Employment Fluctuates 25 Per Cent.

THE DEPARTMENT OF COMMERCE announces that, according to reports made to the Bureau of the Census, the value of products of establishments engaged primarily in the manufacture of brick, tile, terra cotta, fire clay products, non-clay refractories, and pottery amounted to \$278,546,800 in 1921, as compared with \$283,342,100 in 1919 and \$172,864,000 in 1914.

For the "Brick, tile, terra cotta, fire clay products, and non-clay refractories" industry, the value of products reported for 1921 was \$194,329,400, which was a decrease of nearly seven per cent. from 1919, but an increase of 43 per cent. for the seven year period, 1914 to 1921.

For the "Pottery" industry, the value of products in 1921 was \$84,217,400, which was an increase of 12 per cent. over 1919, and 128 per cent. for the seven year period, 1914-1921.

Where Plants Are Located

Of the 2,151 establishments reporting in 1921 for the two industries combined, 354 were located in Ohio; 295 in Pennsylvania; 122 in Illinois; 113 in New Jersey; 109 in New York; 105 in Indiana; 87 in Iowa; 65 in California; 60 in North Carolina; 58 in Missouri; 55 in Texas; from 25 to 49 each in Alabama, Colorado, Connecticut, Georgia, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Tennessee, Virginia, Washington, West Virginia, and Wis-

consin; and the balance was distributed among 23 other states.

The fluctuation in the monthly employment of wage earners in the pottery industry was relatively small in 1921, but

Data are given below concerning number of establishments, average number of wage earners, and value of products reported by establishments with products under \$5,000 in value.

	Number of establishments			Average number of wage earners			Value of products		
	1921	1919	1914	1921	1919	1914	1921	1919	1914
The combined industry.....	303	376	1007	550	629	2,808	\$837,338	\$1,018,716	\$2,583,190
Brick and tile.....	249	301	901	498	568	2,641	713,523	858,127	2,359,272
Pottery.....	54	75	106	52	61	167	123,815	160,589	223,918

considerable fluctuation was reported for the brick, tile, terra cotta, fire clay products, and non-clay refractories industry.

Number of Wage Earners

In this latter group in June, the month of maximum employment, 75,705 wage earners were reported, and in February, the month of minimum employment, 57,261—the minimum representing 75 per cent. of the maximum. The

Table 1

Brick, Tile, Terra Cotta, Fire Clay Products, Non-Clay Refractories, and Pottery; 1921, 1919, and 1914 (Ton, 2,000 Lbs.)

	1921 ¹	1919 ²	1914 ²		1921 ¹	1919 ²	1914 ²
Total value	\$280,293,000	\$286,261,300	\$164,981,000	Hollow building tile or block.	2,023,000	2,329,200	.....
Brick, tile, terra cotta, fire clay and non-clay refractory products	195,951,800	208,403,500	129,582,800	.....Tons	Value	\$14,809,500	\$17,964,600
Pottery products	84,341,200	77,857,800	35,398,200	Stove lining	Value	\$799,600	\$683,800
Brick and tile products:				Fire brick	Value	\$24,832,700	\$38,015,800
Common brick.....	4,547,900	4,751,900	7,145,800	Pottery products:			
.....Thousands	Value	\$57,096,200	\$63,584,800	Red earthenware	Value	\$2,045,200	\$1,298,300
Vitrified brick or block.....	563,700	489,200	931,300	Red and brown, white-lined cooking ware	Value	\$626,100	\$724,000
.....Thousands	Value	\$12,870,200	\$11,615,100	Stoneware (except chemical) and yellow and Rockingham ware	Value	\$4,910,400	\$4,603,000
Face brick	873,400	791,100	810,400	Chemical stoneware	Value	\$612,700	\$805,300
.....Thousands	Value	\$18,129,400	\$16,033,100	White ware, including C. C., white granite semi-porcelain and semi-vitreous porcelain ware	Value	\$29,744,300	\$29,847,300
Fancy or ornamental brick.....	2,000	2,200	.....	Porcelain china, bone china, delft, and belleek ware.....	Value	\$4,262,300	\$7,708,900
.....Thousands	Value	\$79,800	\$77,900	Hotel china	Value	\$7,888,200	(3)
Enameled brick	14,100	14,200	.....	Sanitary ware, including bath-tubs, washtubs, etc.....	Value	\$15,302,900	\$14,872,400
.....Thousands	Value	\$1,228,300	\$846,700	Porcelain electrical supplies (not including value of fittings)	Value	\$14,331,000	\$12,614,800
Drain tile	955,500	1,241,200	.....	Saggers	Value	\$1,927,400	\$2,115,600
.....Thousands	Value	\$8,343,000	\$10,946,000	Non-clay refractory products:			
Sewer pipe	1,399,900	1,155,100	.....	Silica brick	Value	\$5,218,200	\$10,914,900
.....Thousands	Value	\$22,155,400	\$16,754,800	All other brick, tile, terra cotta, fire clay, non-clay refractories, and pottery products	Value	\$11,514,400	\$12,108,500
Architectural terra cotta, Tons	70,800	.....	.....				\$4,797,300
.....Thousands	Value	\$9,085,500	\$3,988,200				
Roofing tile	156,500	94,100	.....			
.....Thousands	Value	\$2,314,100	\$1,283,900				
Floor tile.....	6,480,800	7,791,000	.....			
.....Sq. ft.	Value	\$2,375,100	\$1,535,300				
Ceramic mosaic.....	9,973,200	7,471,800	.....			
.....Sq. ft.	Value	\$2,567,600	\$1,824,400				
Faience tile.....	811,500	1,550,100	.....			
.....Sq. ft.	Value	\$830,300	\$881,200				
Wall tile.....	10,452,200	7,495,600	.....			
.....Sq. ft.	Value	\$4,393,200	\$2,612,700				

¹Includes statistics of products made in establishments reporting products under \$5,000 in value, and also clay and refractory products of establishments engaged primarily in other lines of manufacture.

²The total value of products as reported is not strictly comparable with the value of products in the previous table, which includes all products of the establishments irrespective of their character.

³Not reported separately.

average number employed during the year was 68,758, as compared with 76,915 in 1919 and 100,182 in 1914.

In the pottery group in March, the month of maximum employment, 29,739 wage earners were reported, and in July, the month of minimum employment, 26,088—the minimum representing 88 per cent. of the maximum. The average number employed during the year was 28,458, as compared with 27,934 in 1919 and 26,705 in 1914.

Table 2

Brick, tile, terra cotta, fire clay products, non-clay refractories, and pottery:
1921, 1919 and 1914.

	1921 ¹	1919 ¹	1914 ¹
Number of establishments	2,151	2,378	2,582
Brick and tile industry	1,881	2,113	2,338
Pottery industry	270	265	244
Persons engaged	108,277	117,195	139,530
Proprietors and firm members	1,809	1,832	2,933
Salaried employees	9,252	10,514	9,710
Wage earners	97,216	104,849	126,887
Brick and tile industry	68,758	76,915	100,182
Pottery industry	28,458	27,934	26,705
Salaries and wages	\$131,303,700	\$129,920,700	\$84,826,300
Salaries	22,222,200	21,844,300	13,252,500
Wages	109,081,500	108,076,400	71,573,800
Brick and tile industry	73,726,000	78,256,000	54,907,400
Pottery industry	35,355,500	29,820,300	16,666,400
Paid for contract work	550,200	646,000	739,200
Cost of materials	93,503,100	88,282,200	54,754,700
Brick and tile industry	68,275,900	67,488,100	42,723,200
Pottery industry	25,227,200	20,794,100	12,031,500
Value of products	278,546,800	283,342,100	172,864,000
Brick and tile industry	194,329,400	208,422,900	135,921,400
Pottery industry	84,217,400	74,919,200	36,942,600
Value added by manufacture ²	185,043,700	195,059,900	118,109,300

¹Statistics for establishments with products valued at less than \$5,000 are not included in the figures for 1921, but for 1919 and 1914 they are included with the exception of the item "Number of establishments."

²Value of products less cost of materials.

The statistics for 1921, 1919 and 1914, for the respective industries, are summarized in the statement table 2. The figures for 1921 are preliminary and subject to such change and correction as may be found necessary from a further examination of the original reports:

Detailed statistics of products for the years 1921, 1919, and 1914 are given in table 1. The figures for 1921 include all products of the establishments engaged primarily in the manufacture of brick, tile, terra cotta, fire clay products, non-refractory products, and pottery, and in addition, the clay and refractory products reported by establishments assigned to other industry classifications. The figures for 1919 and 1914, from the reports of the U. S. Geological Survey, include the clay and refractory products made by establishments primarily engaged in other lines of manufacture.

FIRE BRICK MARKETS IN LATIN AMERICA

A great many manufacturers have become interested in the export possibilities of refractories. To aid them in securing information as to markets, the Refractories Manufacturers' Association with the aid of the Bureau of Foreign and Domestic Commerce has conducted an investigation into the fire brick requirements of Latin America. R. M. Howe, Senior Fellow, Refractories Fellowship, Mellon Institute, has prepared a 44-page pamphlet giving valuable data as to the number of industrial plants in each country using refrac-

tories, their capacities, dealers in refractories, tariff, and other information.

According to the figures given in this booklet, Argentina imports from 3,000,000 to 5,000,000 refractory brick per year, of which only ten per cent. come from the United States. Cuba already imports about 4,000,000 refractory brick each year from the United States. Argentina, Brazil and Chile offer the best field for increasing the sale of American fire brick. However, the brick would have to be of higher quality and the service rendered better in order to offset the lower cost of the European brick in these markets.

* * *

TESTING SECOND REFRACTORIES KILN

The laboratory car "Holmes" of the Interior Department arrived in Wolmelsdorf, near Reading, Pa., March 25, and tests are being made at the plant of the Lavino Refractories Co., the second of a group of seven tests being made under a cooperative agreement between the Department and the Refractories Manufacturers' Association.

Temperatures in all parts of the test kiln are recorded at equal intervals by pyrometers which indicate high temperatures thru the difference in electrical current formed by the contact of two different metals, the higher the temperature, the greater the current. Measurements are made of the kiln draft and the flue gases; coal, ash, unburned and finished products are analyzed. By this means the testing group knows exactly what happens inside the kiln at all times.

The technical work of the laboratory car is under the immediate direction of E. P. Ogden, ceramic engineer, and the testing crew, composed of fuel and ceramic engineers, consists of W. E. Rice, car manager, A. W. Whitford, E. M. Rupp, R. F. Lunger, A. H. Fessler, and F. Wentzel. G. A. Bole is supervising the tests.

* * *

NEW IMMIGRATION PLAN PROPOSED

Early action to supplement present immigration restriction methods by extending authority to the President to test out the possibilities of a flexible system of selection of immigrants is urged in a preliminary report of the Immigration Committee of the Chamber of Commerce of the United States, made public recently. The committee plan would permit the test to be made under wide executive discretionary powers to regulate a portion of the annual inflow on the basis of demonstrated social and economic needs in the country. The present restrictions are to remain but an additional two per cent. of immigrants to be admitted on a selective basis.

* * *

N. P. B. M. A. PLANNING NATIONAL PUBLICITY

Plans for the proposed extensive advertising campaign of the National Paving Brick Manufacturers' Association are being completed at the Cleveland, Ohio, headquarters of that organization. It is proposed to further this campaign in trade, business and college papers. The work will be laid out largely along educational lines. It is expected that much illustrative matter will be used, the whole move being planned to awaken public interest in better paving as a whole and brick paving in particular.

Accounting Simplified

G. W. Greenwood

Treasurer United Refractories Co., Dunbar, Pa.

Chapter XII.—CLOSING THE GENERAL LEDGER

IT WILL BE NOTICED in the example in the previous chapter that the Expenses for the year amount to \$20,870, and the Sales to \$23,000. Naturally these must agree with the totals as shown by the Recapitulation of Expenses sheet. Let us assume that the figures on this sheet are as follows for the month of January, of February, and for the entire year.

	January	February	Total
Labor	\$1,000	\$1,200	\$14,850
Supplies	440	400	5,090
Fire Insurance	360	...	360
Interest .....	...	300	570
Totals	1,800	1,900	20,870
Sales	2,000	2,500	26,000

Now instead of setting forth the closing entries as briefly as possible, let us elaborate upon them first, going into the underlying principles.

A "Deferred" Charge

We have charged up in Expenses the sum of \$20,870. In addition to this, we hold the current year responsible for Supplies amounting to \$1,000 which were on hand at its beginning. Also, there is a Deferred Charge from the previous year of \$25; that is, \$25 which, tho paid in the previous year, was for the benefit of the current year and therefore not included in the previous year's operating costs, but "deferred;" these amounts are to be added to the \$20,870 charged up in the current year.

On the other hand, when the interest on the Mortgage, amounting to \$300, was paid out at the close of February, \$200 of it was for interest which had accrued during the previous year, and was included in the operating costs of that year; it was therefore carried forward as a credit to the present year.

We therefore have the following:

Expenses	\$20,870
Supplies on Hand, January 1.....	1,000
Deferred Charges from previous year.....	25
	\$21,895
Less Accrued Liabilities charged in previous year	200
	\$21,695

After the payment on February 28 of \$1,000 on the Mortgage account, the mortgage drew interest at the rate of \$45 per month. Six months' interest was paid August 31, and at the close of the year \$180 more had accumulated. This will be paid at the close of February the following year, but belongs in the current year just as much as an invoice entered and unpaid at the close of the year. The current year must therefore be charged with this additional \$180.

Crediting Unused Supplies

On the other hand, at the close of January there was paid a Fire Insurance premium for a year amounting to \$360—an

increase over the premium paid the previous year on account of taking out additional insurance. One month of this, \$30, belongs to the following calendar year and is therefore a Deferred Charge to be credited to the current year.

The current year is also to be credited with Supplies to the amount of \$800, charged up but according to a physical inventory not used.

We therefore have the following continuation:

	\$21,695
Accrued Liabilities	180
	21,875
Less Supplies Inventory.....	800
	21,075
Less Deferred Charges to following year.....	30
	21,045
Net Operating Charges.....	\$21,045

This is sometimes called the cost of the brick made. For the lack of a better expression, we may use this—apologetically; but if this were a treatise on cost accounting we would explain just why it is decidedly NOT the "cost of brick made."

However, taking this figure for whatever it may be, and applying the initial and final inventories, we get what we may with equal inaccuracy call the "cost of brick sold," thus:

Brick Inventory, January 1.....	\$ 2,000
Cost of Brick Manufactured.....	21,045
	23,045
Brick Inventory, December 31.....	2,500
	20,545
Cost of Brick Sold.....	\$ 20,545
And now as a last step we have the following:	
Sales	\$ 23,000
Cost of Brick Sold	20,545
	2,455
Net Profit	\$ 2,455

Except for the use of the terms "Cost of Brick Made" and "Cost of Brick Sold," the foregoing calculations are reliable. And until we find better expressions we will have to continue using the ones criticized.

Arranging the Computations

A convenient method of arranging all these computations is shown in the accompanying illustration (figure 15), where the versatile summary sheet appears in still another role.

It will help very much if black and red ink are used in making out this form, the headings as well as all the figures in the third, fifth and sixth columns being in red; the item credited to Sales is also in red, as well as the Net Profit.

For the first group, we insert in the descriptive space the names of the Expense accounts as they appear in the Recapitulation of expenses the totals for the year amounting to \$20,870, being placed in the fourth column. In the first column we place the amount of the initial inventory of Supplies.

Profit and Loss Statement 1923									
		January 1, 1923			December 31, 1923				
		Inventory	Deferred Charges	Accrued Liabilities	Inventory	Deferred Charges	Accrued Liabilities		
Group I	Labor			14850			14850		
	Supplies	1000		5090	800		5290		
	Fire Insurance		25	360		30	355		
	Interest			700			180		
		1000	25	700	800	30	180		
				20870			21045		
Group II	Cost of Brick Made			21045					
	Inventories	2000			2500				
	Cost of Brick Sold						20545		
Group III	Cost of Brick Sold			20545					
	Sales			23000					
	Profit						2455		

Figure 15, Profit and Loss Statement for 1923, Showing Method of Arriving at Net Profits. The Figures and Words Between the Heavy Lines Are Supposed to Be in Red.

In the next column are placed the Deferred Charges carried over from the previous year, in this case prepared Fire Insurance Premium.

Liabilities Accrued

The next column contains, in red ink, the liabilities accrued but unpaid or unentered in the previous year, the example used being that of interest accruing on a mortgage.

The headings and amounts which are to appear in red have a heavy line above and below in the illustration.

In the fifth column, in red, is inserted the inventory of Supplies on hand at the close of the year. In the next column, also in red, are the Deferred Charges which belong to the following year. In the seventh column are the Accrued Liabilities which have accumulated but which have not yet been entered on the General Ledger.

Use Computing Machine

We now find the amounts to be entered in the final column by adding the black and deducting the red items in each horizontal line. It facilitates this very much if there is available a computing machine which adds and subtracts.

When we have extended all the items, we add all columns and find if the eighth total is also the result obtained from the first seven, adding the black and deducting the red items.

It is this total which we have with some hesitation called the "Cost of Brick Made." The various items in the eighth column are oftentimes considered elements of factory costs, and many manufacturers solemnly divide these items by the number of brick molded during the year (deducting an arbitrary per cent. to cover breakage), calling the quotients "Cost per thousand."

per cent. to cover breakage), calling the quotients "Cost per thousand."

Transferring Total of Items

We transfer this total from column eight to column four in group II, where it is combined with the inventories of Brick for the beginning and the end of the year. The result is placed in the final column, and is now called, for want of a more exact title, the "Cost of Brick Sold."

This result is transferred likewise to column four in group III, and combined with the Sales (the Sales being in red), the result in the eighth column being the Net Profit, inserted in red. A Net Loss (and this has been known to occur), would be inserted in black ink.

Notice how these computations and extensions are made almost automatically and mechanically. In fact, they can be made by a person who has no accounting experience.

Closing the General Ledger

Our next move is to "close" the General Ledger. We have among the General Ledger accounts a set consisting of Supplies Inventory, Deferred Charges and Accrued Liabilities at the beginning of the year; we wish first to replace these by the corresponding values at the close of the year, the difference being transferred to the Expense account. We simply turn to the Operating Register, and in the descriptive space, following the close of December, we write, "Closing Entries for 1923." There is also an advantage in starting these on a new sheet instead of on the same sheet following December,

so that there is a distinct line of cleavage between the monthly closing entries and the annual closing entries.

According to tradition, when one makes a journal entry he first writes a debit or debits and follows with the corresponding credit or credits. This is no longer strictly adhered to; so we will take the items as they occur on the Profit and Loss sheet, setting down amounts which when posted will cancel these entries at the beginning of the year, and will establish in their stead, those for the close of the year, the entry being as follows (using only the GENERAL LEDGER columns):

Inventory Supplies January 1, 1923.....	\$1,000
Deferred Charges January 1, 1923.....	25
Accrued Liabilities January 1, 1923.....	\$200
Inventory Supplies December 31, 1923.....	800
Deferred Charges December 31, 1923.....	30
Accrued Liabilities December 31, 1923.....	180
Expenses (to balance).....	175

In making this entry, notice that the black amounts are set down on the credit side and the red on the debit side; it is easy to remember the combination of words, "red" and "debit."

When this entry is posted, the original Inventory, Deferred Charges and Accrued Liabilities are ruled off and the current ones take their places. The Expenses account now amounts to \$21,045, which is the total of the eighth column. We next combine this with the Brick Inventories in a similar manner, and transfer the net result to the Sales, thus:

Inventory—Brick January 1, 1923.....	\$ 2,000
Expenses (cost of brick made).....	21,045
Inventory—Brick December 31, 1923.....	2,500
Sales (cost of brick sold).....	20,545

The Sales account now shows a net credit of \$2,455 which we transfer to Profit and Loss, 1923, thus:

Sales	\$ 2,455
Profit and Loss.....	\$ 2,455

Now notice that we have effected the closing of the General Ledger, in the simple case we are considering, in three journal entries; entries no more complicated than many which occur in the course of ordinary routine business. Entries which can be made by any intelligent person with no knowledge of accounting.

The first four totals in the first group are carried in the ledger initially, and the first of the three journal entries substitutes the last four totals. The next entry now substitutes the last two totals of the second group for the first two. The third entry substitutes the final amount in the third group for the amounts in the fourth column.

The General Ledger trial balance for December 31, 1923, after closing will be as follows:

Accounts Receivable.....	\$ 8,580
Bank	1,575
Property	50,000
Inventory—Brick	2,500
Inventory—Supplies	800
Deferred Charges	30
Expenses—(None)	
Accrued Liabilities	\$ 180
Accounts Payable	1,850
Mortgage	9,000
Sales—(None)	
Capital Stock	50,000
Profit and Loss 1923.....	2,455
	<hr/>
	\$63,485 \$63,485

These are the figures which are to be inserted in the new General Ledger Trial Balance Sheet for 1924 as a starting point, under the caption of January 1, 1924.

Trial Balance as Financial Statement

With only a change in arrangement this particular trial balance becomes a Financial Statement for December 31, 1923, as outlined in chapter XI. These initial and final financial statements are incorporated in income tax reports. A Profit and Loss Statement for the year 1923 can be prepared in many ways, one of which would be as follows:

Profit and Loss Statement for 1923

Sales	\$23,000.00
Inventory January 1, 1923....	\$ 2,000
Cost of Brick Made.....	21,045
	<hr/>
	\$23,045.00
Inventory December 31, 1923.....	2,500.00
	<hr/>
	20,545.00
Profit for 1923.....	\$2,455.00
Cost of Brick Made—	
Labor	\$14,850.00
Supplies	5,290.00
Fire Insurance	355.00
Interest	550.00
	<hr/>
	\$21,045.00

Number of Accounts Immaterial

It may be imagined that the simplicity of these closing entries and the facility with which the Profit and Loss sheet is made out is due to a considerable extent to the fact that we are dealing with fewer than ten accounts. So far as the General Ledger is concerned, and so far as these closing entries are concerned, it makes no difference whether the Expense account of \$20,870 is composed of four items, or forty; because we are dealing with totals, and not with individual expense accounts. Let us illustrate this:

Suppose we are making a considerable larger distribution of expenses; for instance—

Superintendence	Fire Insurance
Direct Labor	Compensation Insurance
Indirect Labor	Advertising
Raw Material	Selling Expenses
Fuel	Freight
Explosives	Demurrage
Factory Supplies	Taxes—State and Local
Live Stock Supplies	Taxes—Federal
Tools	Commissions
Molds	Discounts
Machinery Repairs	Interest on Notes
Kiln Repairs	Interest on Liberty Bonds
Office Salaries	Truck Expense
Office Supplies	Depreciation—Machinery
Office Rent	Depreciation—Kilns
Telephone and Telegraph	Depreciation—Buildings

Of course some firms carry many more accounts than these.

Assign Symbol to Each Account

All that is necessary is to assign a sufficient number of letters and symbols to identify these different amounts as the charges and credits appear in the Operating Register, and to insert these names in the descriptive spaces in the Recapitulation of Expenses.

We then insert month by month the amount of each, in the recapitulation sheet; we extend the total of each for the year in the column following December; we total this thirteenth column and see if this total agrees with the gross total of the 12 previous totals, and also with the net amount charged to Expenses in the General Ledger.

These items are then copied from this thirteenth column into the fourth column of the Profit and Loss Statement; we then total this fourth column and verify the result by comparing with the total of the former column from which

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Dawn of Better

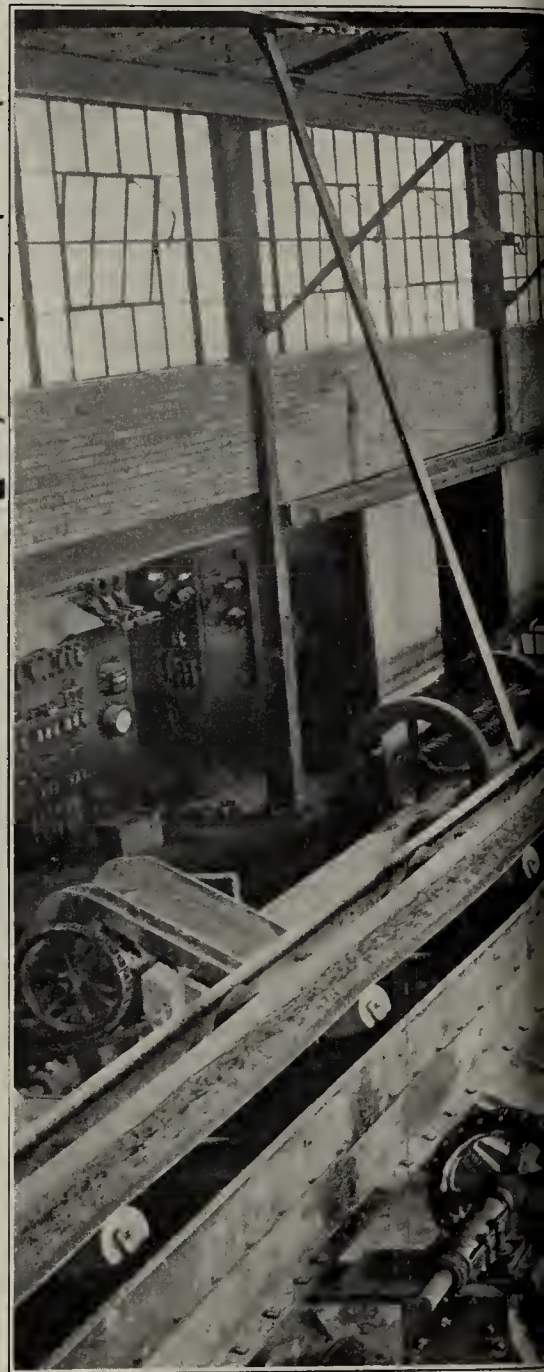


THE continued rise of the International Sun, leading the way to better clay plant construction is clearly shown in the predominance of International equipment thruout the new plant of Gloninger & Co., at Vanport, Pa.

This is the result of our foremost Engineering Service, which is evidenced in all International equipment, at this and all other plants.

INTERNATIONAL CLAY MACHINERY CO.

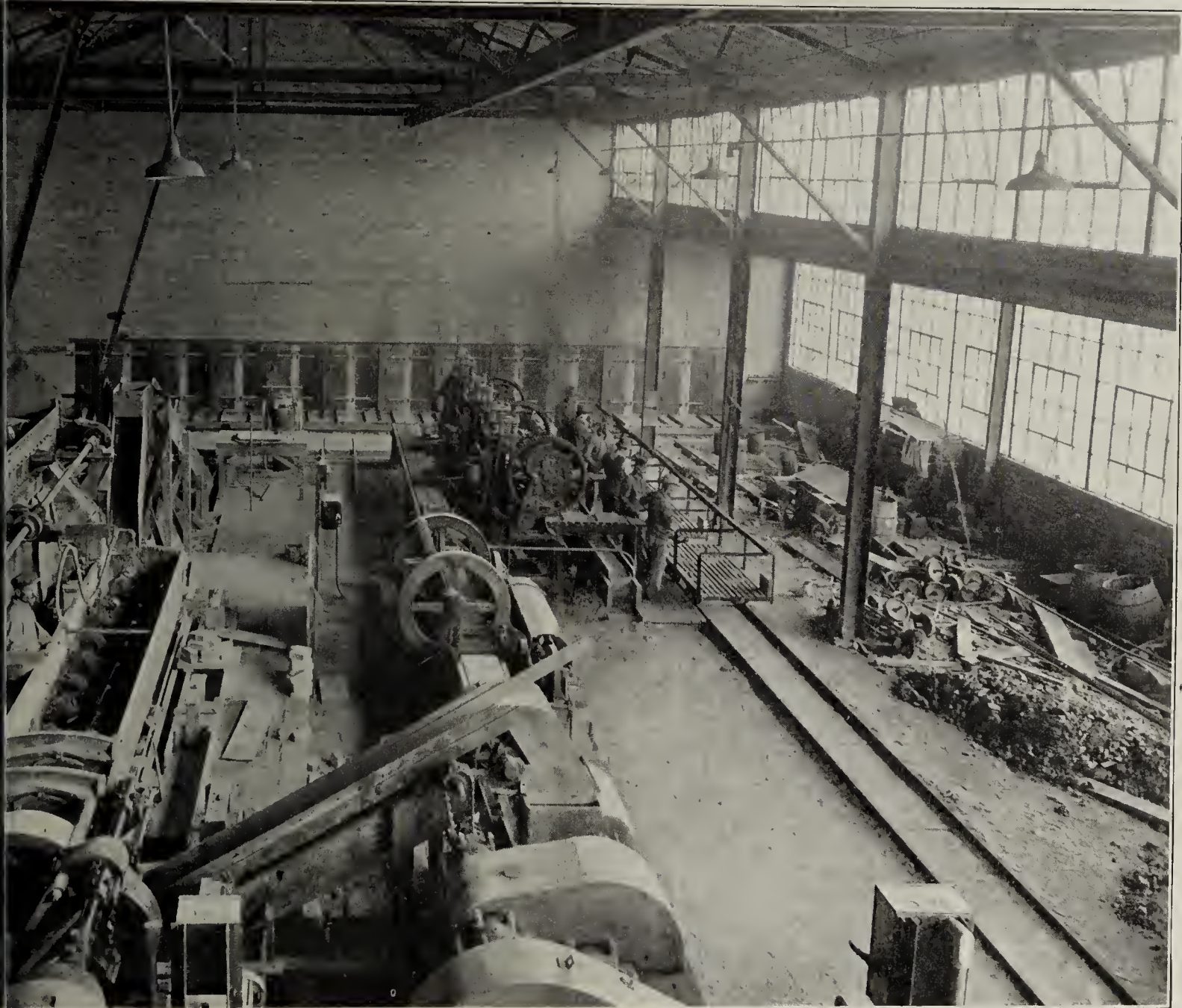
NEW YORK DAYTON, OHIO PITTSBURGH



ENGINEERS
and
DESIGNERS
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COMPLETE
CLAY PRODUCTS
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**EQUIPMENT *for* MANUFACTURING
CLAY PRODUCTS—POTTERY
and GENERAL WARE**

it was copied. Do not ever copy a total; add the column and compare the result with that of the original column.

Taking Inventories

Now with such an array of accounts as this, we would in general have at the close of the year physical inventories of raw material, fuel, explosives, factory supplies, live stock supplies, tools, molds, office supplies, unused repair material, and so forth. Of course we are not advising any reader to take physical inventories of all these; but on the other hand, so far as this system of handling accounts is concerned, he can go just as far as he wishes without its making any essential difference in the amount of work required. We simply insert in the fifth column, in red ink, as many of these inventory values as it is desired to carry.

We then go down the list, finding that during the year we have paid and charged up fire insurance, advertising expenses, taxes, excessive repairs, and other amounts the benefits of which will accrue directly to the ensuing year, or years. We insert such values in column six also in red, opposite the proper descriptive titles. There is one other class of items akin to these, but not exactly in the same class, which for want of a better place may safely be included in this column; that is, credits which have accumulated but which have not yet appeared on the books; for instance, interest accrued on Liberty Bonds, on uncanceled bonds of the company held in its treasury, on notes receivable drawn with interest, and so forth.

Accrued Liabilities

Finally, we go down the list and find that we have accrued liabilities, such as interest on a mortgage, compensation insurance, interest on interest-bearing notes payable, which charges belong to the current year but will be entered and charged in the following year. We insert these in black ink in the seventh column.

Another item which can properly be included in this column is the unearned portion of interest on a note receivable, the interest of which was paid in advance, or was included in the amount of the note.

Of course all companies do not go to this extent. But here is a feature which is really valuable: suppose an invoice has been received for fuel, but that it is in dispute for some reason. Under the circumstances the invoice should not be entered; but if the coal has been used, it will not be fair to let the succeeding year bear this expense when the amount shall have been definitely determined. So we insert in this seventh column either the full amount of the invoice or the amount which we believe will approximate the final payment.

Journal Entries Not Involved

In all this, there has been no formidable array of journal entries; we have simply inserted the amounts in either red or black ink, retaining such supporting papers or schedules as would be required in any case.

We have a similar set of figures for the beginning of the year, in columns one, two and three.

We now perform the elementary addition and subtraction necessary to determine the amounts in the eighth column, total the remaining columns and verify the eighth total as a result of the previous seven.

Inventory Accounts Handled Simply

Notice that it makes no difference how many inventories we have of supplies, of raw material of diverse kinds; only the total of all such inventories appears in the General Ledger, and this single amount remains unchanged from the first of the year until the end, at which time it is replaced by the new amount. Just compare this complete dodging of entries with the work involved where each inventory is carried in the General Ledger and each of these many inventories is

rectified at the close of each month! And of course this same economy exists in the handling of the Deferred Charges and Accrued Liabilities.

Having now completed group I, we write up groups II and III as previously outlined.

We then write up the three closing journal entries as before, using the totals of the three groups. Thus we see that no matter how complicated the initial and closing adjusting items, or how numerous the classes of accounts, there are under the circumstances but three closing entries which involve no difficulties.

* * *

A. E. S. C. STANDARDS PUBLISHED

The 1923 year book of the American Engineering Standards Committee, which has just been published, contains 35 standards thus far proved by the A. E. S. C., of which the following seven are of especial interest to building trades and civil engineering professions:

Specifications and tests for Portland cement; specifications for fire tests of materials and construction; standard tests for toughness of rock; specifications for drain tile; code of lighting factories, mills and other work places; standard method of distillation of bituminous materials suitable for road treatment; method of test for penetration of bituminous materials.

* * *

RATE CASE TO BE DECIDED SOON

Decision in an injunction suit brought by 21 Indiana railroads to restrain the public service commission from permanently suspending increased carriers' tariffs on brick and clay products in Indiana, soon will be announced by Judge T. J. Moll, of the superior court in Indianapolis.

The chief issue involved, according to Judge Moll, is whether the Central Freight Association promulgated rates consistent with a recent ruling of the interstate commerce commission, or whether the public service commission is unreasonably discriminatory. The original complaint charges that the carriers abided by the ruling of the interstate commerce commission and that the new tariffs were suspended by the public service commission at the instigation of certain brick manufacturing interests. The rates are applicable principally in the Wabash Valley, which the public service commission contends, has been discriminated against.

Among those who testified in favor of the public service commission were George B. Luckett, of Crawfordsville, owner of plants with an annual capacity of 950 cars; representatives of the National Fireproofing Co., owner of 21 clay plants; Earl C. Hervey, representative of a company owning 24 brick plants and representatives of the Construction Tile Co., operating plants in Indiana and Ohio.

* * *

MAKING FINE OLD ENGLISH BRICK

Brick made according to samples of old English brick now are being turned out at the plant of the McKay Brick Co., Wickliffe, Ohio. This new face brick, according to John F. McKay, so closely resembles the material they are patterned after that when the samples accidentally got mixed with the new material they could not be found. They are a perfect match in texture and shade.

The brick from which they were designed were brought to Cleveland some years ago by Mr. McKay, as mementoes of his trip abroad during the World War, where he was identified with the A. E. F. The brick are now being duplicated at the Wickliffe plant. They are being made in three shades of red, just as they were in the brick used in the house from which the originals were taken.

BRICK AND CLAY PRODUCTS seemed to play a major role in the Home Complete Exposition in Indianapolis, which was held in the Manufacturers' Building, at the State Fairgrounds, the first week in April. Two exhibits in particular, in which brick was featured, were especially noteworthy.

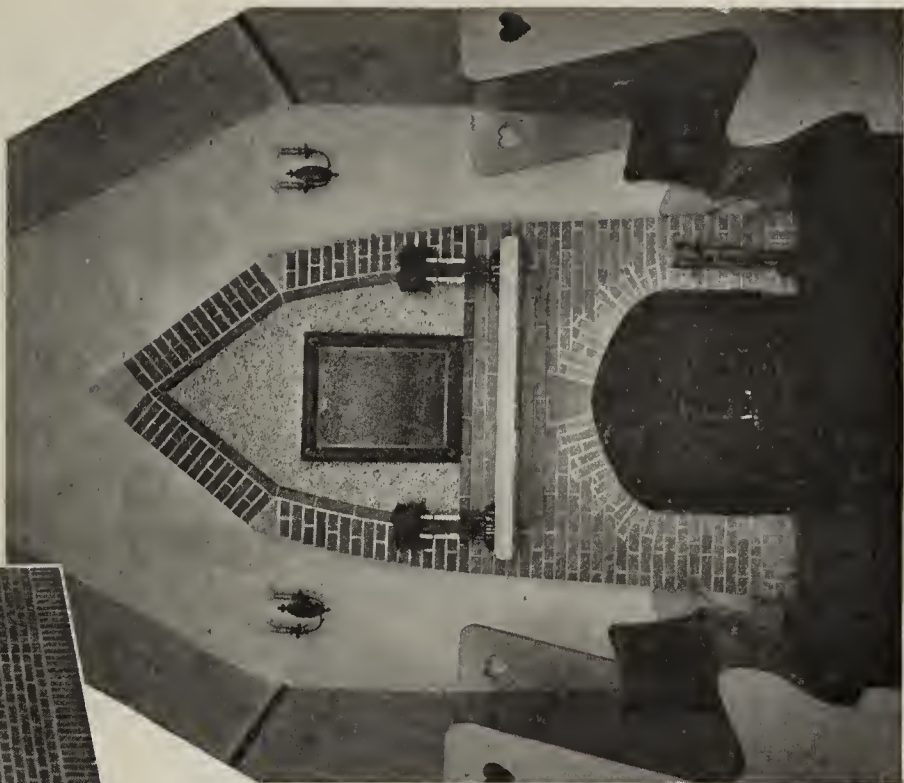
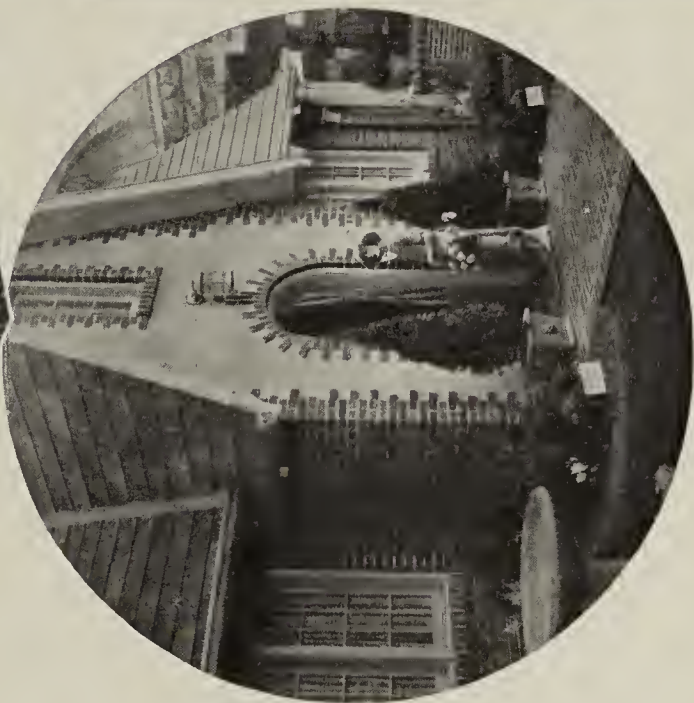
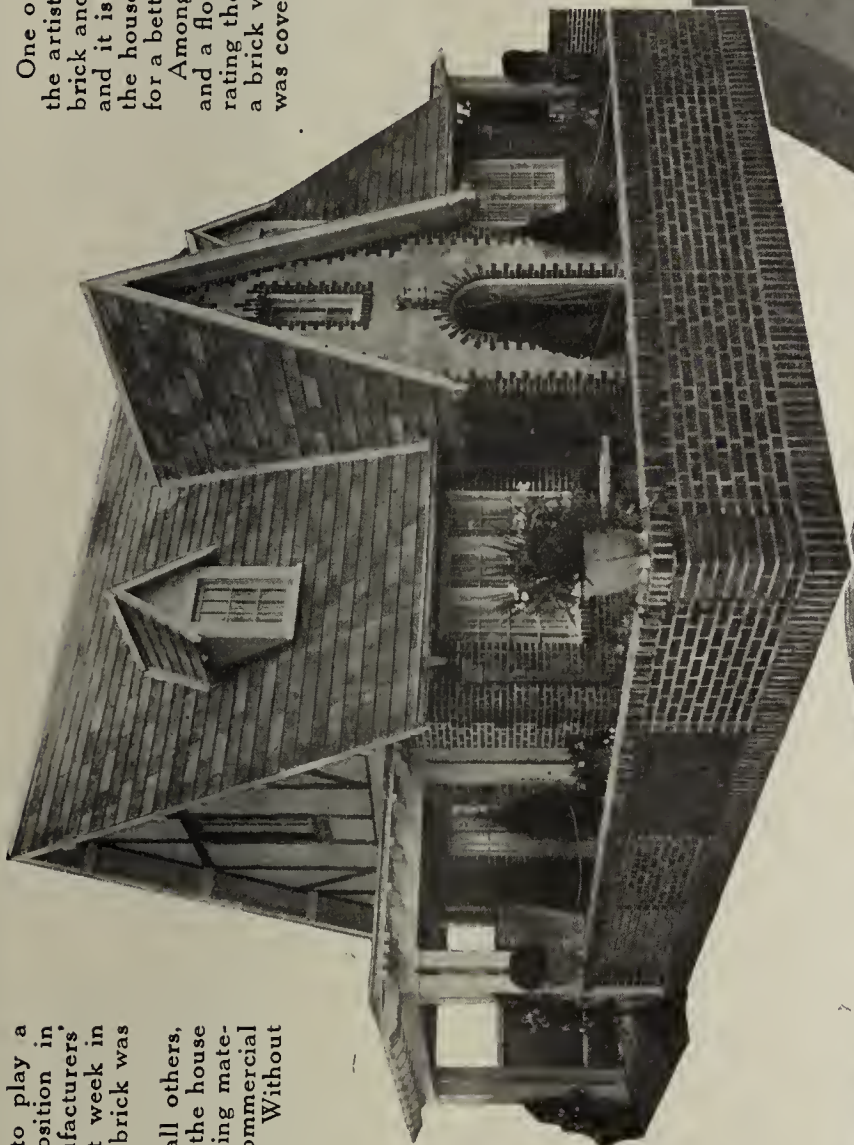
The exhibit which stood out apart from all others, both from an artistic and monetary value, is the house shown here, which was erected by the building material dealers, who are members of the Commercial Credit, Audit and Correct Weights Bureau. Without its interior decorations it cost approximately \$5,000, and so artistic was it that officials of the Indianapolis Automobile Trade Association and members of the State Agricultural Board are attempting to induce the dealers to leave the house inside the building.

The style was Old English and the interior so arranged that it lent itself well to a living room effect, which was furnished complete with draperies and living room furniture.

One of the prime motives, of course, was to show the artistic effects that might be produced with good brick and good workmanship. The bureau succeeded and it is doubtful if there was one person who saw the house and its interior who did not have a desire for a better home.

Among the exhibitors was a landscape gardener and a florist and these aided in landscaping and decorating the grounds about the house. About it all was a brick wall about four feet high. One-half the roof was covered with tile shingles and the other half with asbestos shingles.

Members of the building material division of the bureau who cooperated toward the structure were: The F. W. Aldag Co., Allied Coal & Material Co., Balke & Krauss Co., Brannum-Keene Lumber Co., Davis Coal & Block Co., Frank M. Dell, Fred Goepper & Son, Indianapolis Coal Co., Irvington Coal & Lime Co., William F. Johnson Lumber Co., A. B. Keepert Co., O. L. Miller Co., Peoples Coal & Cement Co. and the Spickelmier Fuel & Supply Co.



FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

Editor's Note--The following article is part of the address of Frank P. Judge at the annual meeting of the United States Potters' Association, of which organization he was president during the past year. A complete report of this meeting, which was held April 10 and 11 at New York City, will be published in the May 1 issue of Brick and Clay Record.

OUTLINES NEEDS OF POTTERY INDUSTRY

NINETEEN-TWENTY-TWO was a year of steady improvement. The reaction which hit us the middle of 1920 ran its course to the middle of 1921. The explanation of this reaction is not simple. Probably it was a halt in a too rapid rise that had previously taken place and that had discounted too abundantly the improvement that was being made in business generally.

Banking conditions were typical of a period of early recovery. Commercial loans began to decrease toward the end of 1920 and continuously declined during 1921 and the early part of 1922.

Prices which had been falling in all parts of the world during 1921 were on the up-turn in most countries by October, 1922. Notable exceptions to this were Japan, Canada, Norway and Sweden, where small declines were still being recorded in October.

Pottery Business Now Better

Our industry is one which is so closely interwoven with the general business of the country that we naturally may expect to feel, in rather a pronounced degree, the reaction of general business tendencies, be that what they may. It requires no extended discussion on my part, if indeed it requires any discussion at all, that we are at present passing through a phase of moderate, but fortunately better business than that which obtained the latter part of 1921 and early 1922.

Wholesale trade is showing decided improvements, reflecting, of course, the vast volume of building operations.

Financial Situation Good

The financial situation is on the whole very good. It is true that there is much uneasiness in certain quarters regarding the immediate future with some indications of inflations. War lessons in this respect have not been learned or taken to heart as much as they should. Expansions of business

activity should be on a moderate scale, if future difficulties are to be avoided.

Excessive Imports Hurt Potters' Business

Our industry has been materially affected by excessive imports, due to the recent tariff changes, but due to the recent curtailment of production, stocks have been so reduced that 1923 should be a very active year. However, we should safeguard ourselves against German importations.



FRANK P. JUDGE

which represent 20 per cent. of the German production. Like conclusions apply to the important trade from Japan, Czecho-Slovakia and other foreign countries. We know our business as well as the other fellow and we are quite willing to be pitted against him so long as his competition is as fair and square as ours.

Never before in the history of tariff legislation has quite so much adroitness and deception been used by its historic enemies to defeat the principles and purposes of adequate protection to American industries and American wage-earners. Our representatives appeared before the House Ways and Means Committee, also the Senate Finance Committee not once but several times and asked for an opportunity to compete successfully with similar foreign producers by increasing the rates on pottery and the incorporation of the American valuation plan in the new tariff law.

Flexible Tariff Adopted

When the Fordney-McCumber Tariff Bill became a law it carried an increase in the rates on pottery but instead of the American valuation plan it carried what we recognize as the "Flexible Tariff" plan, which gives the president (after

investigation by the Tariff Commission) authority to raise or lower any rate not to exceed 50 per cent., the new rate to become effective 30 days after proclamation by the president. American industries and the American wage-earner are now enjoying the protection of the new tariff law and American business has practically adjusted itself to the new rates.

Big Improvement in Quality

For years our forefathers toiled along as best they could, contenting themselves with the results they obtained under adverse manufacturing conditions, but the progress of time and the demand from the consumer made it imperative for us to give thought and attention to the improvement of our product. The full significance of this did not dawn upon us until importations of foreign dinnerware were curtailed by reason of the recent World War which practically put all manufacturing at a standstill, exclusive of such as was necessary to the conduct of the war and to provide the actual necessities of the people. The American potter was not slow to realize that his opportunity was at hand and the past few years have seen many changes in our manufacturing processes. We are proud of the fact that our products today are far superior in body, glaze, art and design than they were a few years ago.

Research Is Necessary

We must not stop with our accomplishments of today, but we should exert every effort to continue the perfection of our wares so that we shall eventually be able to supply all the demands of our home consumption and, in addition, develop an export trade. To do this we cannot follow along the same lines as we did years ago, encountering difficulties and not knowing how to overcome them other than to work from all angles on the problem until it was solved—consequently we are still in the dark as to the cause of the trouble.

May Establish Research Laboratory

A few of our largest potteries are now maintaining their own research laboratories and look upon them as one of their most valuable assets. A smaller pottery needs the services of the technical man just as much as the large one, but the needs of the small pottery hardly justify the maintenance of a research department. To take care of the small potteries it is suggested that a research laboratory be established at a central point (in the name of the United States Potters' Association) which would be in charge of a ceramic engineer whose services would be available to any member of our association at any time, the member paying for the individual service he would receive. When not engaged in doing work for an individual factory the ceramic engineer could be conducting experiments, studying raw materials, methods of firing, fuels, and so forth. It is my sincere hope that before this meeting adjourns some action will have been taken on this matter. Our industry is expanding and the work of our association should expand with it.

Create Fellowship at Bureau of Standards

At the last annual meeting a new committee was created. It is known as our Research Committee and in the short space of time it has been functioning, much valuable information has been furnished our members. The outstanding feature of the work of this committee during the past year was to interest the United States Bureau of Standards in working out some of our problems. On October 27, 1922, a Fellowship was established at the Bureau to work on one of our greatest problems—that of crazing. A ceramist is now making a systematic study of this and we are looking forward to receiving an interesting report from this fellowship later on in our program. In addition to working on the crazing question the Bureau is also doing considerable experimenting with sagger clays to determine which clay

or combination of clays will give us a sagger better than what we are now using.

Artistic Side Improving

Each succeeding year is finding a decided improvement in the artistic side of our business and before very many more years pass into history the evil of imitating shapes, decorations, and so forth, will be stamped out. Each factory should put individuality into its product and the sooner we come to the realization of this, just that much sooner will the keen competition of the past be eliminated.

To stimulate activity along the line of originality in shapes and decorations, a prize could be given each year by the United States Potters' Association to the individual suggesting the best designs for dinner services and to the decorator or artist offering the best suggestions for decoration. We might not feel the necessity of serious consideration of this subject at the present time, but we must not forget that there is a day coming when everything is not as favorable as it is now and that will be the time when the product of fine quality, originality in shape and decoration will not need to fear competition, either foreign or domestic.

Wants Uniform Cost System

The United States government forbids price fixing by Trade Associations, but it strongly urges and recommends manufacturers and merchants to know their costs. Our association is being urged to adopt a uniform method of cost accounting and there is no question but that the industry as a whole would be greatly benefitted if we all would employ the same accounting methods to ascertain our costs. It is my opinion that the cost system should be the foundation for the books of each company. It is also my opinion that many feel that a cost system is a burden rather than a help. The latter would be true if the cost system was laid out to have the factory fit the system rather than to have the system fit the factory.

During the past few months a very careful study of potteries and pottery conditions have been made by a cost engineer. A cost system can well be called the "Watch-dog of Business," and I sincerely hope that before our next annual meeting is called we will have adopted a uniform method of ascertaining our costs.

Give Customers Greatest Value

In making sales of our products we all realize that in addition to giving our customers value for what they pay, we must give them something else, and that is Service. Pages could be written on the value of this as a business asset, but it is needless to delve deeply into this subject, as we all realize that the concerns which are interested in their products from the time the raw materials are purchased until the finished product is in the hands of the consumer are the ones that, as a rule, are most successful and whose factories are the busiest.

In matters of advertising, sales, stocks and transportation we can render an invaluable service to our customers. No doubt there are many of us who have given much thought to this particular phase of our business and those of us who have not should give it consideration in making their plans for the future.

Breakage in Transit Serious Factor

With reference to transportation the carriers are continually complaining about the number of claims they are receiving for breakage in shipments of crockery. This matter has become so serious that unless such claims are curtailed, the carriers will increase their rates on our products to offset their losses in our shipments. In many cases the claims made are trivial and in these instances the loss should be considered as part of the "Overhead" expense incidental to the dealing in such a fragile article as crockery.

This situation is disagreeable, especially when claims are made for damage in shipments of lump ware. Anyone buying lump ware and then filing a claim for damage in transit, subjects himself to criticism and suspicion of dishonesty, yet we are informed that many claims are being filed for damage in such shipments. We, as shippers, should discourage as much as possible the practice of filing claims excepting in such cases where the damage is out of the ordinary. We might also assist the carriers by strictly observing the rules relative to packing, particularly with reference to the packing of bulk cars.

We, as shippers of china and earthenware, should develop a spirit of cooperation with the carriers and if we do our part there is hardly any question that we will be met more than half way by the carriers.

Pleads for Concerted Action

The strongest force of civilization today is organization—the grouping together of men whose interests are in common with each other, by which there may be an interchange of ideas. Our organization today needs the whole-hearted cooperation of all manufacturers working together to solve the problems peculiar to our industry. Not only for the particular interest each represents, but by adjusting themselves to the needs of all will bring about a cooperation that will benefit the industry.

We must have concerted action and harmonious effort if we are to have results. We must have complete correlation of interest of both large and small manufacturer. The individual member must be willing to set aside petty jealousies and combine with his neighbor for the good of all. It will not always be smooth sailing for us and we must be a unit if we are to successfully cope with the problems that are bound to confront us in the future.

* * *

TERRA COTTA WILL MAKE U. S. BEAUTIFUL

Maj. F. S. Laurence, executive secretary of the National Terra Cotta Society, New York, believes that when terra cotta with its gorgeous coloring is used more extensively in building and decoration, then the cities of the United States will be the most beautiful in the world. It is reported that in the Major's recent lecture at the Kansas City (Mo.) Art Institute, he said, "Beauty and art are at last gaining their place in America. Our people, in their search for the beautiful, are realizing the possibilities and usefulness of terra cotta. For centuries Europe has used it and they have as a result wonderfully beautiful buildings."

* * *

STATTER TO OPEN KAOLIN MINE

Arthur A. Statter, former assistant secretary of the treasury, has organized a syndicate to develop the Black Butte kaolin mine. This mine is on the Mojave desert between Randsburg and Mojave, Cal. It is supposed to be the old deposit from which the Mojave Indians made the pottery which they traded for necessities to the surrounding tribes. It has been pronounced a very fine quality of kaolin.

* * *

ZANE POTTERY NOW EMPLOYS 100

The Zane Pottery Co. of South Zanesville, Ohio, has outgrown the original expectations of its owners. It is situated on a high elevation covering a large tract of land and adjacent to a local park. This year it added to its plant, a stock shed, garage building and two kilns. The concern is successfully managed by its president, Harry S. McClelland. When first starting out in the pottery business, its intentions were to manufacture only flower pots and painted ware, but it is now flourishing as a first-grade art pottery. It has in its employ more than 100 people who are local residents. The

plant operates five kilns and claims never to have shut down except for necessary repairs.

* * *

POTTERY EXHIBIT WINS COMMENDATION

An exhibition by Indiana artists and craftsmen was held recently at the John Herron Art Institute, Indianapolis. Among the rare and most unique displays were 14 specimens of beautiful pottery vases. These were exhibited by the Oberbeck sisters, one of the sisters formerly having been a pupil of Charles F. Binns in the New York School of Clay Working and Ceramics. The distinction and beauty of their potteries are placed on equal rank with those of the older and larger potteries. At the Oberbeck home, in Cambridge City, the three sisters build, decorate and fire these vases in a nearby kiln. Eight vases, a bowl of rich oxblood, two plates, two stands, and a grotesque are included in the exhibit.

* * *

POPE-GOSSER INCREASING PRODUCTION

The Pope-Gosser China Co., Coshocton, Ohio, has begun the erection of a new addition to its plant, estimated to cost approximately \$25,000. It will be used for general increase in production.

* * *

ONONDAGA BUILDING \$500,000 ADDITION

The Onondaga Pottery Co., Syracuse, N. Y., has let the contract for erection of an addition and extension to its plant to cost about \$500,000, it is said.

* * *

WORK ON COORS PLANT PROGRESSING

Regardless of the unfavorable weather that has been present in Golden, Colo., the enlargement of the Coors Porcelain Co., is rapidly progressing. The foundation walls are nearly completed and work on three new double kilns has begun. The new two-story building will be constructed of glass and steel. When the new additions are completed, the capacity of the plant will have more than doubled.

* * *

FRENCH CHINA ENLARGING

The French China pottery at Sebring, Ohio, is going to expand and work will begin at once. The plant is to be enlarged to make room for four new decorating kilns which will be built immediately. The new addition will be of considerable size and will be of brick and stone. Work at the plant is crowding the workmen to the limit and the added decorating kilns will be of great assistance to an enlarged output.

* * *

DUO-ART BELLECK CO. FORMED

The Duo-Art Belleck Co., Trenton, N. J., has been organized under state laws with capital of \$50,000, to operate a local pottery for the manufacture of fine chinaware. The new company is headed by Charles L. Conrad, Harry Klag, Jr., and Harvey T. Satterthwaite, 137 East State Street, Trenton. The company is represented by Linton Satterthwaite, address noted.

* * *

PORCELAIN COMPANY ENLARGING

The New Jersey Porcelain Co., Trenton, N. J., has work under way on a new plant to occupy a block of property bounded by Plum and Strawberry Streets, and Pennsylvania and New York Avenues, to be equipped for the production of a line of high grade products. It will be of brick and terra cotta, and is estimated to cost about \$60,000. A list of machinery to be installed has been arranged. The Fowler-Seaman Co., Trenton, is engineer in charge.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

In the Long Run Fair Prices Win Out

YOUR GREATEST OPPORTUNITY right now is "price." How you handle this highly sensitive and important factor of business will affect your future trade.

Business is now running into very large volume and it is readily possible to raise prices of clay products whether or not the advances are justified by the cost. It is true that wage increases have been quite general in the clay industry recently and therefore higher prices seemed necessary for profits. But as one statistician has pointed out—"the general impression that wage increases are going to absorb all of the profits, is a mistaken one. And while the margin of profit may not be large, the total earnings will be satisfactory."

Economists have pointed out that there are two distinct schemes of pricing. The first aims to charge all the traffic will bear. It is, unfortunately, the plan upon which most business men work, and it is also the method of organized labor. This plan places a heavy burden upon selling and eventually builds up sales resistance which cuts down profits.

The second plan is to set prices at a low margin of profit and to depend upon an increased volume of business for good earnings. It is a method upon which has been built up the largest automobile factory in the world and it is also the plan used by other large concerns who have been eminently successful.

The value of this plan lies in the fact that production and sales cost per unit decline as the volume is increased. At this particular time, because of the large volume of business, opportunity for adopting the above method is especially good.

In general, any concern that will refrain from advancing prices unduly will build up a trade that will be sound and will stand in the most impregnable position when the present wave of price expansion comes to a halt. Such concerns will be increasing their volume of trade and will be prepared to carry on after the artificial level of prices has broken, while others are

sacrificing volume of business to maintain a price level.

Similarly, this works with industries, too, and the clay products industry will have an excellent good will asset if it can announce later that it did not follow the wave of high prices.

Paving Brick to the Rescue

FOR MANY YEARS paving brick manufacturers have been predicting that the time would eventually come when the paving brick industry would be called upon to resurface a great deal of the less permanent roads that have been laid in recent years. Modern traffic conditions have required a service too severe for many of the roads of this country. Engineers and highway officials have been experimenting

Coming Soon—

A certain clay plant, by the installation of latest improvements just completed will save in payroll it is estimated the staggering sum of \$72,000. How this was done will be told in one of the greatest stories on production methods ever published in any business publication—

Don't Miss It

with a large variety of pavements in an effort to find a form of construction that would stand up and yet be low in cost.

Where they have failed chiefly, however, is in the cost factor. They have too frequently sacrificed durability for low first cost. As a result upkeep and reconstruction costs have been a serious factor to contend with.

Brick paved highways when properly constructed are the cheapest in the end. The slogan chosen by the Western Paving Brick Manufacturers' Association expresses their virtue very aptly—"Pave with Brick—Outlasts the Bonds."

The paving brick manufacturer has cause for considerable comfort in the resurfacing work that is now going on at Bettendorf, Ia., where a concrete

street that reached a bad stage after a short period of usefulness is being resurfaced with brick. This job should make an ideal example for other cities and counties who must solve the problems of maintenance on roads that have gone to the bad. Paving brick manufacturers should lose no opportunity to tell the highway world of the story of the Bettendorf experience.

Technical Knowledge Is Needed

IF THE GHOST of some clay products manufacturer who has been dead for 50 years would make a tour of inspection of the great brick and tile manufacturing centers of the present day he would give a spiritual gasp of amazement at the tremendous developments in the industry. Most notable among these developments is the undoubted trend toward the acquiring of more scientific and technical knowledge. It is recognized that the "practical clay worker" does not fill every requirement of the large modern plant. This is said with no lack of appreciation of his great worth.

More and more men are needed and engaged who are technically trained to cope with the problems which modern demands for quality and quantity present. These men are coming for the most part from the ceramic departments of our great universities. It is therefore vital that the clay industry interest itself in these ceramic schools.

We are happy to be able to say that in some sections manufacturers have interested themselves in technical training courses. Just recently we have had tangible evidence that clay products manufacturers and others in the state of Georgia have formed an organization to promote the establishment of a ceramic department at the Georgia School of Technology. Materials and money are being donated to insure the success of the enterprise.

This is certainly commendable work and deserves to be encouraged. Every Georgia clay products manufacturer should, after the course in ceramics has been established, be able to feel proud that he had a hand in the establishment of the new course.

UNIVERSITY OF ILLINOIS
1929 APR 1



This View Shows Condition of Old Pavement Which Is Now Serving as the Base for the Brick Surface.



Foreground Shows Side of Street Car Tracks Already Resurfaced with Brick. Other Side Not Yet Paved.

Resurface Concrete Road With Brick

City Engineer at Bettendorf, Ia., Used Worn-Out Road as Base for Vitri-fied Brick, Asphalt Filled Pavement

WHAT IS PROBABLY the forerunner of a practical and economical method of adequately and permanently salvaging thousands of miles of rigid pavements that have been worn to a condition of extreme roughness, is now being introduced at Bettendorf, Ia., a suburb of Davenport. A hard surface pavement that was laid eleven years ago but which has been in bad condition for the last nine years, is now serving a useful purpose as a base for a new pavement. City Engineer, N. H. Tunnichiff, has solved the problem of repairing the pavement by simply resurfacing it with vitrified paving brick and thus making practically an entirely new pavement of it. The rebuilt pavement will have the many advantages that a vitrified brick pavement is recognized to possess such as flexibility, durability, long life, and low repair costs.

Main Artery Being Resurfaced

The road now being paved is part of the main artery out of Davenport leading northward along the west bank of the Mississippi river. About three miles from the heart of Davenport, the road passes thru Bettendorf, a small municipality quite widely known for the car shops which are located there. Other industrial plants are also located in this manufacturing city.

The road at Bettendorf is a street about 50 feet wide between curbs including two street car tracks. The roadway on each side of the car tracks measures approximately 18

feet. This road has been subjected to heavy traffic between Davenport and Bettendorf and also carries the major traffic from Davenport to Clinton, Ia., a neighboring city.

City Engineer Tunnichiff, of Bettendorf, specified a three-inch vertical fibre, lugless brick pavement, asphalt filled by squeegee method. The specifications are being successfully complied with in the requirement that no more than a paint coat of filler is left on the top surface of the brick. Torpedo sand is applied after filler is placed.

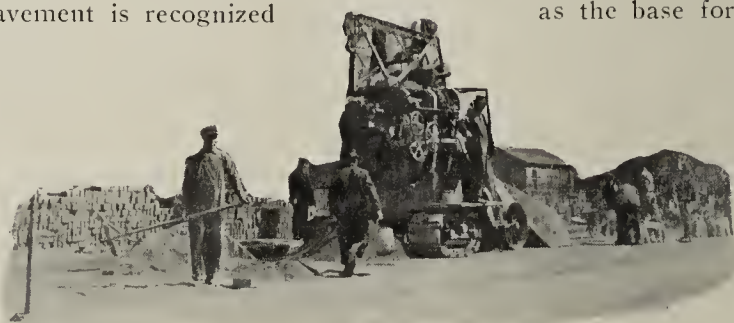
The brick surfacing was specified to be laid on one-inch thick, 1 : 4 cement-sand bed spread over the old six-inch concrete pavement which was to remain as the base for the new street. Extra material is used to fill depressions in the old base. In some places the depth of bed or cushion is as much as six inches.

The contract was let at \$2.425 a square yard to the Central Engineering Co. of Davenport, with the stipulation that where extra thickness of cement-sand cushion was required in cracks, holes, and so forth, the additional amount of sand and cushion

to be used would be paid for at \$10 per cubic yard.

Purinton Supplied Brick

The total pavement includes approximately 28,000 square yards, all of the work being done by the Central Engineering Co. and the brick furnished by the Purinton Paving Brick

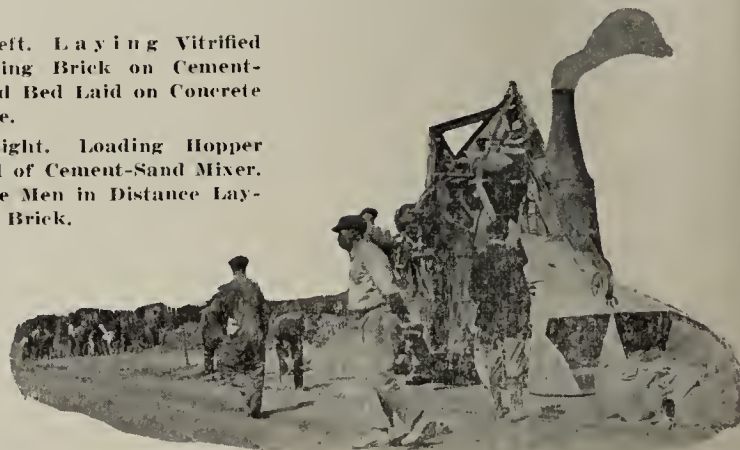


Cement-Sand Bed of 1:4 Mixture Is Applied One Inch Thick and It Sets with Natural Moisture.



Left. Laying Vitrified Paving Brick on Cement-Sand Bed Laid on Concrete Base.

Right. Loading Hopper End of Cement-Sand Mixer. Note Men in Distance Laying Brick.



Co. Brick furnished are of less than 22 per cent. loss on rattler test, with 27 per cent. loss as maximum for individual brick.

It seems that Mr. Tunncliff has hit upon the solution of a problem that is confronting a good many engineers and highway commissions thruout the country. There are miles of pavement in the United States that have not stood up



Applying Hot Asphalt to Fill Spaces Between Brick. Men Distribute Filler Evenly Over Entire Pavement.

under the severe traffic conditions that our main roads are subjected to. This method of resurfacing with brick might well be considered by other localities as the logical way for permanently solving the repair problem.

It so happens that when the street car tracks were relaid it was anticipated that the old pavement would eventually be surfaced with brick. Thus the tracks were laid higher than the level of the pavement. The original six-inch pavement was built in the hopes that it would serve traffic over a long period the same as all other rigid hard surface roads constructed are expected to serve. The method of resurfacing the Bettendorf pavement would be almost universally applicable.

OHIO TO MAKE OWN ROAD MATERIALS

A bill has been passed by the House of Representatives of Ohio appropriating \$750,000 to enable the state to enlarge its brick plant at Junction City as well as establish cement plants and other factories for the making of road materials. The bill is largely the result of the fight between certain departments of the state administration over the best method of road construction as well as the alleged high price of road materials.

Superintendent Clark of the state brick plant is completing extensive improvements to the plant consisting of a new and large clay crusher, an addition to the dryer and other improvements which have more than doubled the capacity of the plant.

* * *

POSITION FOR CERAMIC ENGINEER

The Civil Service Commission invites applications for the position of Ceramic Engineer in the Mines Branch, Department of Mines at Ottawa. Initial salary, \$2,100. Applicants should be graduates in ceramic engineering with three years' commercial or research experience. For particulars apply immediately, mentioning Competition No. 5241, to Civil Service Commission, Ottawa, Canada, not later than May 21, 1923.

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THE SIX STANDARD PAVING BRICK

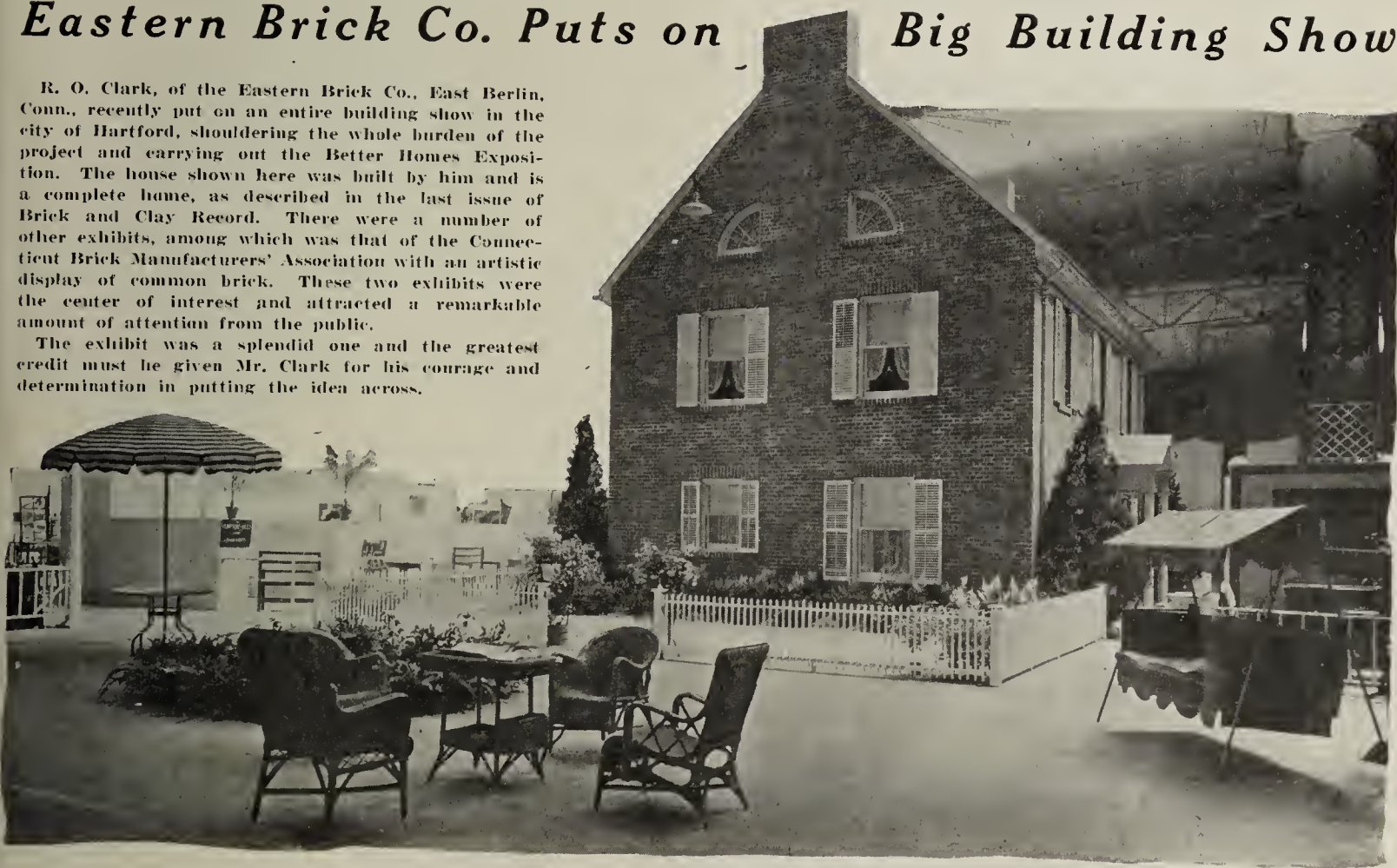
At a meeting in Washington, March 27, of the permanent committee on Simplification of Variety and Standards for Vitrified Paving Brick, one more variety of paving brick was eliminated from the group considered as "standard," as reported in Brick and Clay Record of April 3. The following six varieties are those which are now officially considered as "standard": Plain wire-cut brick (vertical fibre lugless), 4"x3"x8½" and 4"x3½"x8½"; Wire cut-lug brick (Dunn), 3½"x3"x8½", 3½"x3½"x8½" and 3½"x4"x8½"; repressed lug brick, 3½"x4"x8½".



Eastern Brick Co. Puts on Big Building Show

R. O. Clark, of the Eastern Brick Co., East Berlin, Conn., recently put on an entire building show in the city of Hartford, shouldering the whole burden of the project and carrying out the Better Homes Exposition. The house shown here was built by him and is a complete home, as described in the last issue of Brick and Clay Record. There were a number of other exhibits, among which was that of the Connecticut Brick Manufacturers' Association with an artistic display of common brick. These two exhibits were the center of interest and attracted a remarkable amount of attention from the public.

The exhibit was a splendid one and the greatest credit must be given Mr. Clark for his courage and determination in putting the idea across.



INVENTS NEW TYPE COMMON BRICK

Wallace H. Eaves, 215 Oakland St., Atlanta, Ga., one of the best known brick and masonry contractors in the Southeast, advises Brick and Clay Record that he has just perfected the invention of a new brick which, he claims, is superior to any clay building material now on the market. Mr. Eaves, who had full charge of the brick work on the immense Muscle Shoals project during the war, has been experimenting in the production of burned clay products for many years, and the new brick is the result of a long series of experiments and tests.

The brick has been patented under the name of the "Eaves Brick," and it is said that well known building material and brick men in the southern field who have examined it, pronounce the brick to be a very superior product. Arrangements have been made for its manufacture on a royalty basis by a number of companies in various parts of the country, Mr. Eaves advises, and it will probably be on the market within another 30 days.

The new brick is made up in the usual form and out of the usual materials, the principal difference being that the units are hollow, with two large holes in either end and a smaller flat one in the center of the brick. It can be made on any

ordinary brick machine, the inventor states, with a few minor adjustments which can be made in ten minutes. The cost of the brick will be about 40 per cent. less than the present common brick, which would make it cheaper even than ordinary hollow tile. The weight, however, is but a fraction less than that of the usual solid brick, the weight bearing strength and external appearance being about the same. It serves the same purpose now served by ordinary common brick.

* * *

FINDS FIRE CLAY IN SASKATCHEWAN

W. G. Worcester, Ceramic Engineer of the province of Saskatchewan has located high grade fire clay in the southern part of the province. This was subjected to seven laboratory tests where it gave every indication of being of very high grade, but in order to prove its actual worth under commercial conditions actual tests were made on C. P. R. and C. N. R. locomotives. Fire tile for locomotive fire-box arches were made from the clay and placed in locomotives, lined with the best imported tile being used by these railways. The tests have just now been completed and from observation the Saskatchewan clay gave, if anything, a higher resistance to the intense heat developed than did the imported tile.



Business Men Endorse Trade Association Activities

APPROVAL of the existence of properly functioning trade associations for each important branch of industry and commerce in the country was voted by business organizations affiliated with the Chamber of Commerce of the United States in a preliminary referendum canvas April 13 last, results of which have just been announced by the National Chamber. The propositions and the vote in each case follow:

"First: Because of numerous useful and important functions of obvious propriety trade associations should exist for each important branch of industry and commerce." Result: For, 1,692; against, 6. Necessary to carry, 1,132.

"Second: A trade association should have such a membership that it can be representative of the industry in connection with problems affecting the general advance of the industry." Result: For, 1,675; against, 5; necessary to carry, 1,120.

"Third: A trade association should be prepared to consider all problems affecting the general advance of its industry or branch of commerce." Result: For, 1,666; against, 14; necessary to carry, 1,120.

Should Be Free from Governmental Control

"Fourth: Trade associations should continue free from special forms of governmental control." Result: For, 1,596; against, 86; necessary to carry, 1,122.

"Fifth: Statistics of capacity, production, stocks, and sales should be collected by a trade association for its industry or branch of commerce." Result: For, 1,653; against, 20; necessary to carry, 1,116.

"Sixth: Statistics of actual prices in closed transactions should be collected by a trade association for its industry or branch of commerce." Result: For, 1,520; against, 133; necessary to carry, 1,103.

"Seventh: Any interpretation of statistics or other comment which could induce or facilitate concerted action on the part of members should be omitted by a trade association." Result: For, 1,487; against, 130; necessary to carry, 1,079.

"Eighth: Statistics of capacity, production, stocks, sales and prices a trade association should make as available to the public and to government agencies interested in following the

course of the industry and commerce as to members." Result: For, 1,334; against, 282; necessary to carry, 1,077.

Most Associations Are of Great Value

The propositions were taken from the report of the special committee created by action of the Board of Directors of the National Chamber in 1922 to "make a general survey of trade associations, consider activities of trade associations which are in the interest of the public and of the fields of enterprise which are represented."

The committee expressed itself as of the opinion "that, while a minority of trade associations may have engaged in practices which have laid them open to complaint under the law with respect to restraints of trade, the vast majority have proved their great value for the advancement, day by day, of the processes of production and distribution."

The committee also laid down as its recommendations three rules with relation to the statistical activities of trade associations, as follows:

"Reports of members to their association should be accurate and sufficiently complete to prevent misconception.

Regarding Price Information

"As distributed to the membership, the statistics should not be accompanied with any interpretation or other comment which could induce or facilitate concerted action on the part of members.

"All statistics regarding prices should be confined to closed transactions, and should not refer to pending transactions or future transactions."

Summarizing its conclusions the committee said:

"The committee believes that trustworthy information concerning capacity, production, stocks, sales, and prices is essential to the effective operation of industry and trade under competitive conditions. The voluntary reporting of such information to trade associations, and the subsequent publication and dissemination of such information in a manner which makes it available not only to contributors, but also to consumers and to the public generally is beneficial alike to the field of business and the public and does not constitute a restraint of trade."

Why Costs Run Low at Fiske & Co.

Author Bares Many Secrets About
Systems and Equipment Used by a
Small but Remarkably Efficient Factory

C. Forrest Tefft

Production Manager, Fiske & Co., Watertown, Pa.

Editor's Note—This article, which is the second section of a description of the Darlington, Pa., plant of Fiske & Co., continues from the point left off in our previous issue. You will remember that in the first installment the clay mining, transportation, storage, reclaiming, grinding and mixing methods were described. When the article was stopped you had just been told how the ground clay and manganese are fed into the pug-mill by means of a Poidometer. The following article begins with a description of the method of pugging.

The pug-mill has a 12 foot trough. The first three feet of this is used for further mixing in the dry state. After this the mixture is fairly uniform and the water is then applied and the clay pugged in the usual manner.

Brick Machine and Cutter

The brick machine and cutter are of standard make and nothing need be said concerning them except, perhaps, in a general way. All of this equipment is driven by a 125 horse power Burke A. C. motor. This is a special three bearing motor made up for this particular plant. One of its features is a base which is so constructed that the motor can be moved back and the belt tightened without danger of getting the bearings out of alignment. This feature of three bearings allows the motor to carry a 20 inch wide belt without danger of having too much of a load overhanging the motor frame.

It is, of course, standard practice to keep a full supply of wearing and breakable parts on hand, and a point is made that there must be the least possible delay in getting machinery back into running order after a breakdown. Further than this, the mechanical department is making constant inspection of the machines and belts and many a breakdown is forestalled because a worn part is taken care of before it gets to the breaking point. The men responsible for this machinery believe thoroly in keeping "on top" of the job instead of "under it." Because of this constant care, a stranger is invariably impressed with the extreme silence and easy running of this machinery.

Accounting for Ware

Every possible care is taken to keep accurate account of every brick made and put on the dryer cars. The cars at this plant were bought at various times in the past and, unfortunately, they are not all alike and do not hold the same quantity of brick. In order that a close check can be obtained under these conditions a diagram showing just how each kind of car should be loaded is placed in front of the hackers. This has proven an aid to the foreman in showing a new man at the belt how to load the cars correctly and it also keeps an experienced man checked up. As each car is loaded the transfer man places what is called a dryer car tag on it. This tag is a printed card made to carry information as shown on reproduction, Fig. 7.

The tags are numbered serially and every one of them has to be accounted for. When a day's supply is issued from the

office a printed slip containing the same serial numbers as those on the cards is also given out. When a car is nearly loaded the transfer man fills in the first three lines on the card for this car. He also sets down, opposite the number on the printed slip that corresponds to the numbers on the tag, the quantity of brick loaded on the car. The tag is then put on the car as it leaves the hackers. At the end of a day's run the printed slip is handed in at the office. The clerk then adds up the quantities shown on this slip and in this way he has obtained the actual count of the machine production for that day—and his figure is accurate without any guesswork. He knows how many cars and exactly how many brick went into the dryer that day and he is in a position to hold the setters responsible for accounting for these brick.

Dryer Breakage

When a car of brick is set in the kiln the head setter fills in the last four lines on the tag with the car and at the end of the day's work he hands in to the office a card for each car set. The clerk then gives him credit for having set as many cars as he has tags. The quantity shown as dryer breakage on each tag is deducted from the quantity originally set on the car, and in this way a definite check is made of

Car	N ^o 52841	Form No. 27. 25m-7-17
Date Made	_____	
Quantity	_____	
Kind	_____	
Date Set	_____	
Set in Kiln No.	_____	
Dryer Breakage	_____	
Set by	_____	

Fig. 7. Dryer Car Tag. When Car Is Nearly Loaded Transfer Man Fills in First Three Lines. He Also Records Elsewhere Quantity of Brick on Each Car. This System Gives Complete Check on Production

the brick actually set in the kiln and also of the dryer loss for the day. A constant daily check of this sort certainly helps to keep the dryer breakage at a minimum—you've only got to try it to believe it.



Fig. 8. This Interior View of the Dryer Tells a Big Part of the Story of the Drying and Burning System. Note There Are Two 8-Inch C. I. Pipes Under Each Track. The Combustion Gases of the Kilns Are Drawn Thru These Pipes and the Heat for Dryer Obtained from Them by Radiation

The same care is used in checking the brick from the kiln. The definite quantity set in the kiln is known and the shaders are expected to tally this same quantity from the kiln. This careful checking of the ware has been in constant use for several years and the management thoroly believes in it. There certainly ought to be more satisfaction and secure feeling in the mind of an executive whose cost system is based on records of this sort than in the mind of the man who has based his whole system of costs on records obtained by putting a few extra brick on a dryer car and guessing that those few will "take care" of the dryer and kiln loss.

Drying and Burning

The drying and burning equipment in use is so closely related that it can best be described as one unit. The plant is equipped with eight round down-draft kilns with a total

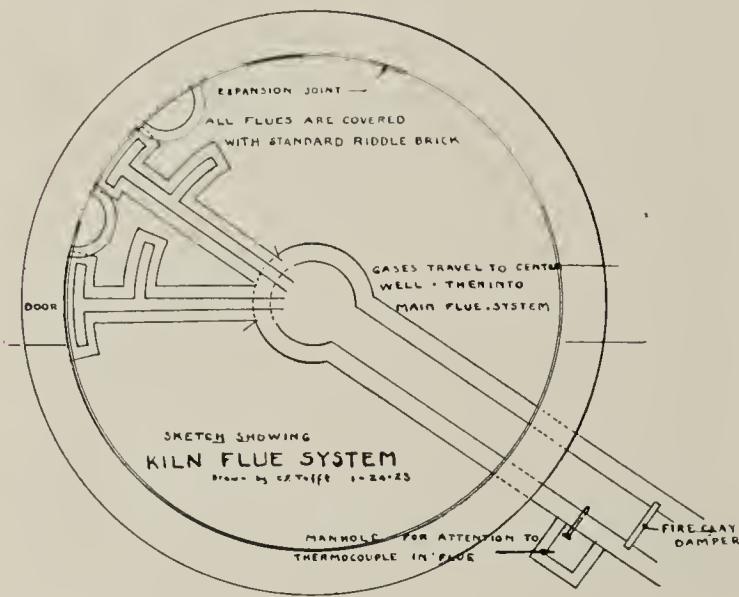
brick are burned to 2,250 deg. F. it must be admitted that this is a good record. It is possible to maintain this production, however, with the few kilns because of the mechanically induced draft system in use. During January, the first month, the total 580,000 kiln capacity was available—a production of 850,000 was made, even tho it is considered difficult to get out full production during January of any year. The construction of the new kiln mentioned above is rather interesting, as this kiln was carefully insulated thruout—in bottom, side walls and crown.

The induced draft used in the kilns is furnished by two fans. One of these is located at the cold or receiving end of the dryer so that its suction draws the hot combustion gases from the kilns thru brick flues and into cast iron pipes (Fig. 8) located immediately underneath the dryer car tracks. These pipes are hot enough so that they radiate heat up and around the brick on the cars above and dry them very satisfactorily. The second fan is located at the end of the main brick flue, which runs across the end of the dryer and from which the first fan takes its hot gases for the dryer.

These two fans furnish the kilns with a constant, never-failing draft. Anyone who has never experienced the use of such a draft would find it difficult to imagine the satisfaction that can be obtained from its use. But just consider for the moment how you would feel if you could whip the moisture out of your kilns, when they start off, with a draft about ten times as strong as the best draft you can get even when your stacks are hot and are pulling their best—and *this regardless of weather conditions*; or suppose you had a stack 300 feet high that was heated all the time. Would you enjoy using that draft for your water-smoking? No, it is not a joke, because two of the best chimney building companies in the country have stated that it would require a stack of this height to do the work that these fans can do.

Fuel Used

The cost of building this drying and burning plant was no more than it would have cost to build additional kilns to get the same capacity, kiln stacks and a good waste heat dryer. The cost of operating is less than the cost of running a waste heat drying system when the saving in fuel, less breakage, more uniform shades and, therefore, less labor in shading, higher percentage of first quality ware, and speeding up of kiln rotation are considered. In fact, this equipment is running with an actual power consumption of about 35 horse power at the present time.



Sketch A. This Shows Construction of Kiln Bottoms in Use on This Plant. Note Flue Arrangement

holding capacity of 580,000 brick. One of these kilns has just recently been built, however, and because of repairs to the other kilns since its completion the actual kiln holding capacity has been only 495,000 brick. With this burning capacity the production of this plant has reached 750,000 per month for many months. When it is considered that the

The fuel used during most of the year is natural gas, but at times during the coldest months of the winter it is necessary to burn coal. The change is not a difficult one, as all that must be done is to disconnect and take gas burners away, tear down the small wall in the face of the firebox around the burner and put in resting and grate bars. Two men can change a kiln from gas to coal in less than one-half day's time and from coal to gas in about one day's time.

There is no difference with the draft system whether gas or coal for fuel is being used. When burning coal it is common practice to use coal from above the clay in the clay mine. While this is good steam coal, there are many kiln firemen who would "kick pretty hard" if they had to burn brick up to 2,250 deg. F. with this coal in ordinary kilns.

In order to describe the layout of the complete system more fully three sketches have been made: (a) A plan of the kiln bottom; (b) a plan of the dryer; (c) a cross section of dryer from end to end. A study of these sketches will show very clearly just how the whole system is laid out and the following details will be noted.

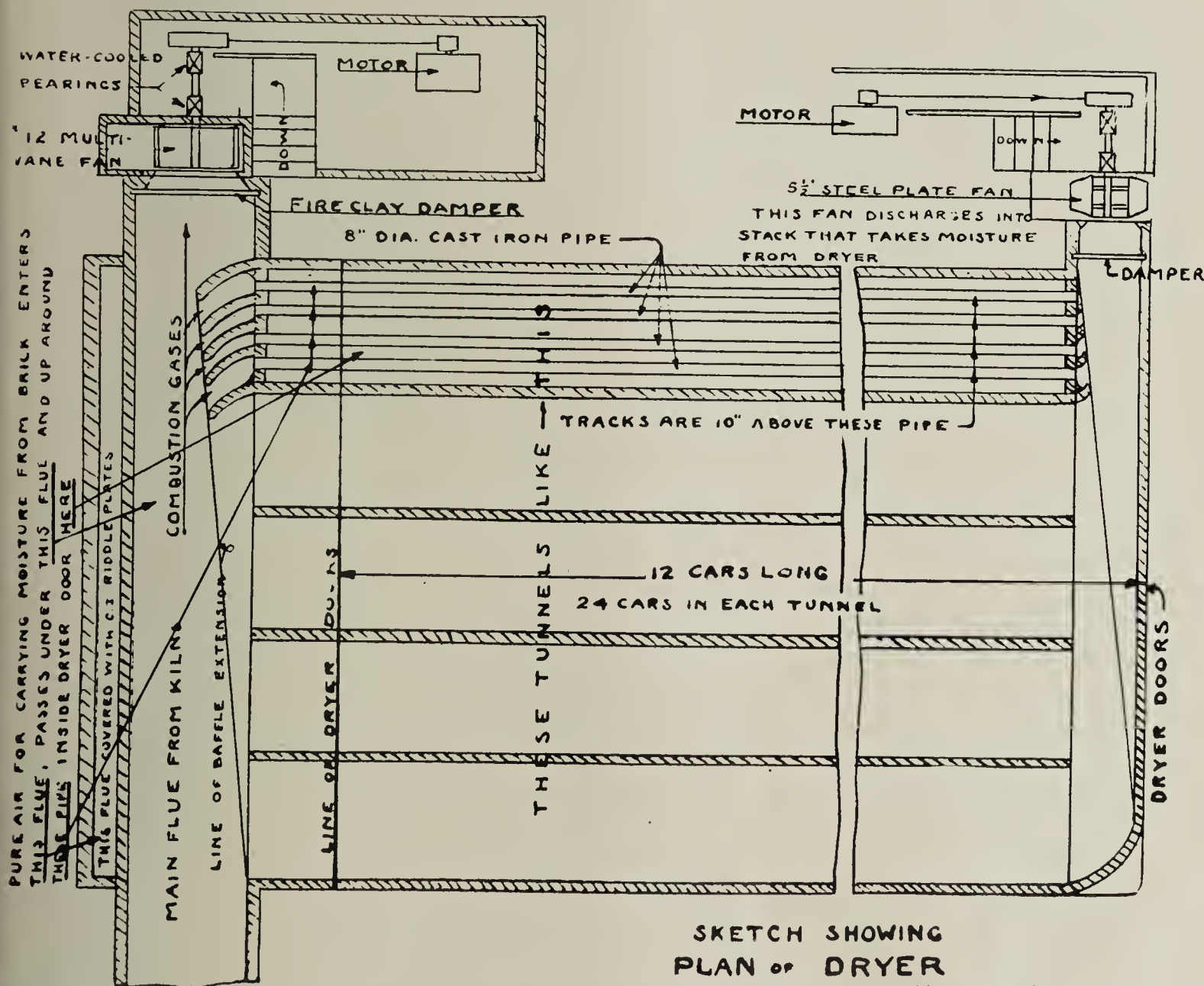
The kilns are of the round down-draft type with radial flues leading to a well in the center of the kiln. The main draft flue is connected with this well. Just outside of each kiln there is a damper for closing it off from the main draft. All of these small flues from the kilns lead into a large main flue that runs across the front of hot end of the dryer. Baffle walls of varying length at both ends of the dryer help the

dryer fan to pull the same amount of gases thru each pipe for dryer heating. Fig. 9 shows these baffle walls under construction.

There are two eight inch cast iron pipes under each track and ten tracks, making 20 pipes in all. The dryer is 12 cars long and holds approximately 62,000 brick. The new production schedule calls for 36,000 brick to go thru this dryer on five days per week and 20,000 on the sixth day. This means that on five days each week it will be necessary to draw 10,000 brick from the dryer that were made the day before.

Description of Fans

The fan shown at the cold end of the dryer on the plan sketch is called the dryer fan. This is a standard 5½ foot steel plate fan with three-quarter steel housing. It is driven at 650 r.p.m. by a 20 horse power motor. Tests show that it requires approximately 18 horse power to operate this fan. The temperature of the gases handled averages about 325 deg. F., and because of this the bearings on the fan are water cooled, as is usually the case with fans built for handling hot gases. A steel housing fitted to the discharge of the dryer fan carries the hot gases into a 50 foot stack immediately over the cold end of the dryer. The stack being heated by these gases produces a suction or draft at its base and, by means of opening dampers leading from the top of each tunnel an outlet is obtained for the moisture laden air coming from the brick.



Sketch B. This Plan of the Dryer Is an Excellent Portrayal of the Whole System in Use on This Plant. Study This Drawing Carefully and You Will Understand the Whole System Better

If the dryer fan were the only one making the draft for burning, all the combustion gases, regardless of their temperature or volume, would have to go thru the dryer pipes



Fig. 9. Baffle Walls of Varying Length at Both Ends of Dryer Help Fan Pull the Same Amount of Gases Thru Each Pipe for Dryer Heating. This View Shows Baffle Walls Under Construction.

and there would be little chance to regulate the dryer temperature. Further than this, more gases would be moved thru these pipes than would be needed to do the drying and a needless waste of power would result because of moving gases against more friction by pulling them thru a number of small flues than would be the case if they were passing thru one large flue.

For this reason the second fan, called the kiln fan, is located at the end of a large flue. The duty of this fan is to handle all the combustion gases that do not need to go thru the dryer. This is a number 12 multivane fan and actually requires between 15 and 20 horse power to pull it—the power consumption, of course, varying with the height of the damper which regulates the amount of combustion gases handled by this fan. The fan is running at 450 r.p.m. and is also equipped with water cooled bearings, as the temperature sometimes reaches 600 deg. F. The gases handled are not used for any purpose and are, therefore, discharged into a brick stack that is just high enough to take them about four feet above the roof of the building.

Pure Air for Carrying Moisture

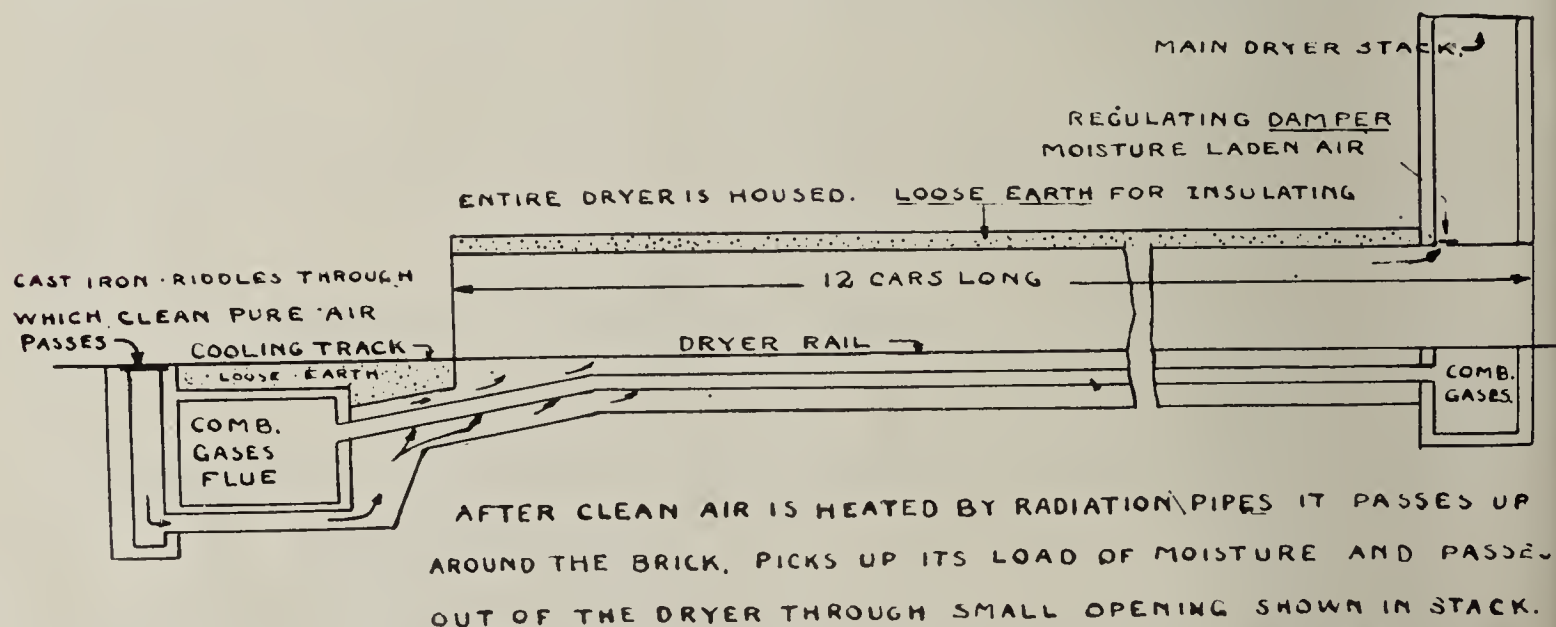
Both fans are located in pits that are on a level with the bottom of the flues, as this reduces the friction to a great extent.

The fact that the gases furnishing heat for the dryer are

confined within pipes is, of course, positive protection against impurities coming in contact with the brick, as is the case with a waste heat drying system, where the gases from cooling kilns are traveling in the same chamber that contains the brick. This fact also makes it necessary that outside air be brought into the dryer to act as a carrying agent for the moisture coming from the brick. The diagram of the cross section of dryer shows clearly how the admittance and exit of this pure air is obtained. The air passes thru cast iron riddle plates over a flue that is located just outside of the main combustion gas flue. This outside flue extends below the bottom of the large flue, which is so constructed that the pure air can travel underneath it. It will be remembered that the temperature of the gases in the main flue is up to 600 deg. F. when they reach the fan and, of course, they are hotter than this back along the flue. As the pure air passes down and around this hot flue it becomes heated. It, however, continues to travel along the cast iron pipes and becomes still more heated so that by the time it rises and comes in contact with the drying brick it is at a temperature of about 250 deg. F.

This heated air picks up the moisture from the brick and carries it on toward the cold end of the dryer, where it enters the dryer stack, into which the fan discharges its load of combustion gases. The size of the openings in the dryer roof, thru which the pure air with its load of moisture travels, is astonishingly small—only about two inches by the width of the tunnel. This opening is regulated by a damper and is kept at the proper size to keep just enough air going up the stack to prevent condensation.

At this point we must again interrupt you. The third section, which will be published in next issue, will complete this interesting article. In that installment the story will continue from where you were interrupted and will tell you how the various operations in drying and burning are regulated. The description of the control equipment, of the method of setting, cooling, drawing, stocking and the details of the burners, as well as other interesting information, will hold your attention in the concluding chapter.



Sketch C. This Drawing Is Cross-Section of Dryer from End to End and Shows Position of Flues, Stack and Paths of Gases.

UNFILLED FIRE BRICK ORDERS LARGE

Stocks of clay fire brick on hand at the end of March, 1923, were 153,478,942 as reported by the Refractories Manufacturers' Association. This was approximately 4,000,000 less than the amount reported for the previous month. Shipments for March exceeded production by approximately 4,000,000, a total of 68,061,572 having been shipped. The total of new orders received was 96,168,442. There was only one cancellation reported, amounting to 388,752. Unfilled orders at the end of March amounted to 114,078,654 which was almost 30,000,000 more than reported for February.

Among manufacturers of silica brick, stocks have remained practically stationary, according to reports of manufacturers for March and February. By the 61 manufacturers reporting there were produced 14,854,159 while shipments exceeded this by about 1,000,000. New orders received amounted to 32,361,554 while cancellations were practically nil. Unfilled orders at the end of March totaled 47,428,251 while in February the total unfilled orders reported were approximately 17,000,000 less.

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CHICAGO SECTION OF A. C. S. AND ILLINOIS CLAY MEN WILL MEET MAY 8

Clay products manufacturers and ceramic men of Illinois should mark May 8, 1923, on their calendars for a journey to Chicago. There will be a double attraction. Beginning with a luncheon at 1.00 p. m. the Illinois Clay Manufacturers' Association will hold their annual meeting at the Hotel LaSalle. With this association will meet the Illinois-Indiana Division of the American Face Brick Association; the Illinois Paving Brick Manufacturers Association and the Illinois Drain Tile Manufacturers Association.

The luncheon will be followed by an address by A. H. Sheffield, secretary of the American Terra Cotta & Ceramic

Co., Chicago. Another talk which promises to hold much of interest for Illinois manufacturers will be given by Prof. James A. King of the National Drainage Association. Prof. King is an authority on the subject of drainage, having written several books on the subject and also contributed freely to national magazines. In addition to these speakers Prof. R. K. Hursh of the Ceramic Department of the University of Illinois will give a talk.

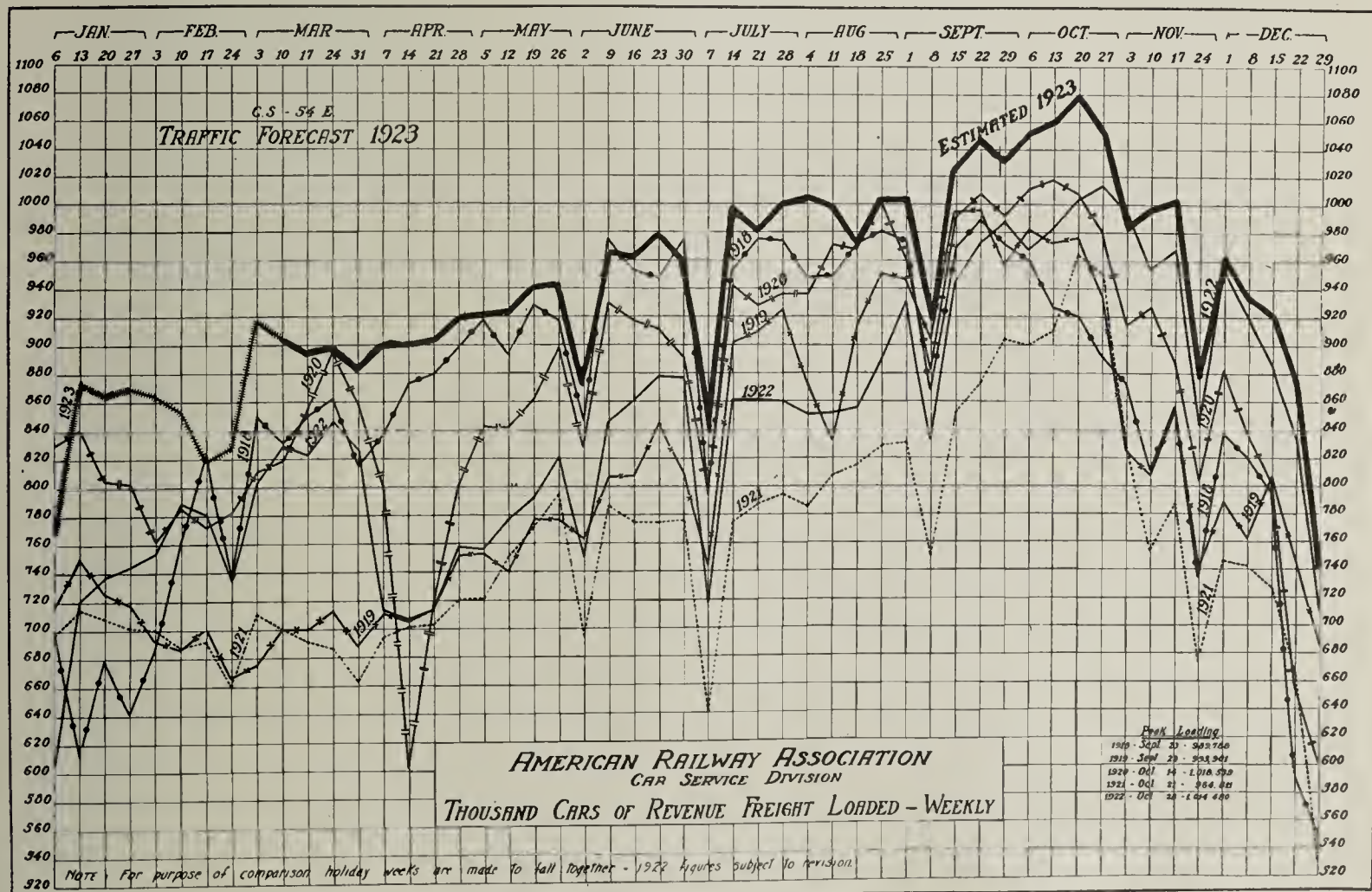
In the evening of May 8 the Chicago Section of the American Ceramic Society will hold a meeting to which the delegates to the Illinois Clay Manufacturers' Association meeting are cordially invited. This meeting will begin with a dinner which will be held at the Hamilton Club, and will be followed by an interesting program. Secretary H. E. Davis guarantees that there will be a "kick" to it but that the kick will not come out of a bottle.

With two splendid meetings assured Illinois clay products and ceramic men should take this opportunity to meet with their associates.

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KEEP YOUR COSTS AND PRICES DOWN!

The increasing cost of building is bringing forth repeated warnings from authoritative sources to the effect that the rising costs will be the main factor in stopping the building boom. These predictions are already threatening to become true in various parts of the country, notably New York. According to the Dow Service daily building report of April 14, in a single week in April \$4,231,000 worth of new apartment projects were reported to the trade as being indefinitely deferred because of high cost of construction. As in 1920, builders are again showing a tendency to stop their operations and await lower construction costs. The only way to prevent the spreading of this idea is to keep construction costs down to the lowest minimum consistent with a fair profit.



This Chart Gives a Graphic Picture of Freight Loadings in a Number of Years. The Heavy Black Line Is the Estimated Amount of Railway Freight Traffic Anticipated for 1923. The Ruled Part of This Line Shows Actual Freight Loadings to Date.

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Accounting Simplified

G. W. Greenwood

Treasurer United Refractories Co., Dunbar, Pa.

Chapter XIII.—MONTHLY PROFIT AND LOSS STATEMENTS

WE have yet another phase to consider: the ease of those who desire monthly profit and loss statements.

Those who do not require such statements monthly, or whose business is such that they cannot take inventories easily with sufficient accuracy, will pass lightly over this chapter. But should such companies ever desire to secure such statements monthly, or even at intervals of three, or four, or six, months instead of annually, they will find the methods heretofore outlined, with no change whatsoever, to afford the necessary basis for this step.

Making Monthly Statements

We begin by preparing a recapitulation sheet as before, heading it "Profit and Loss Statement for January, 1923."

In the descriptive space we write the three groups of accounts; the first three columns are headed as before, "January 1, 1923," each of the three bearing the same headings as in the last chapter and containing the same figures. But in the fourth column we now insert the amount of each item as shown by the Recapitulation of Expenses for the month of January; that is—

Labor	.....	\$1,000
Supplies	.....	440
Fire Insurance	.....	360
Interest (none)	.....	...
Sales	.....	2,000

The next three columns are now headed "January 31, 1923," the separate columns being headed "Inventory" (red

Profit and Loss Statement for January 1923									
	January 1, 1923				January 31, 1923				
	Inventory	Deferred Charges	Accrued Liabilities		Inventory	Deferred Charges	Accrued Liabilities		
Labor				1000.00				1000.00	
Supplies	1000.00			440.00	1050.00		100.00	490.00	
Fire Insurance		250.00		360.00		360.00		250.00	
Interest			200.00				250.00	500.00	
Totals	1000.00	250.00	200.00	1800.00	1050.00	360.00	350.00	1565.00	
Cost of Brick Made				1565.00					
Inventories	2000.00				1700.00				
Cost of Brick Sold								1865.00	
Cost of Brick Sold				1865.00					
Sales				2000.00					
Net Profit								135.00	

Figure 16. Profit and Loss Statement for January, 1923, Showing Method of Arriving at Net Profits. The Figures and Words Between the Heavy Lines Are Supposed to Be in Red.

Transferring this amount to Group III we get as the Profit for the month, \$135.

General Ledger. From the standpoint of Cost Accounting, these facts are extremely significant.

Accounts Receivable.....	\$ 6,000
Bank	2,875
Property	50,000
Inventory, Brick.....	1,700
Inventory, Supplies.....	1,050
Deferred Charges.....	360
Accrued Liabilities.....	\$ 350
Accounts Payable.....	1,500
Mortgage	10,000
Capital Stock.....	50,000
Undivided Profits, 1923..	135

At the close of February, the Operating Register is completed, the General Ledger is posted, the Recapitulation of Expenses is written up for February and the Trial Balance is inserted for that month—all without any regard for the fact that we had taken off a Profit and Loss Statement and

[illegible]

7. Right Hand Page, Showing Profit and Loss Statement for February, 1923. The Figures and Words Between the Heavy Lines Are Supposed to Be in Red.

had prepared a Financial Statement for January. To revise the General Ledger would merely add to our work without adding to our information.

Profit and Loss Statement

We now set about preparing a Profit and Loss Statement for February. We trim off the three outer columns from another recapitulation sheet as shown in Figure 17, and use this sheet for the right hand page opposite the January sheet, so we need not rewrite the three descriptive groups. When this sheet is turned, we can write up March on the reverse side. In this manner we may prepare sheets for the entire year, with one descriptive space.

We head the first three columns "February 1, 1923." The fifth, sixth and seventh columns are headed "February 28, 1923." The sub-headings of these six columns are just the same as they were for January.

Use Black and Red Figures

Under the first three we insert the same figures, naturally, as were used for January 31, but with this essential difference: the colors of the figures are transposed; black instead of red, red instead of black. The reason is obvious. For instance, an inventory credited to January becomes a charge against February. We could, of course, save this re-writing of these three columns by simply referring to the fifth, sixth, and seventh January columns at the left; but the advantage in using two colors is thereby lost and it is a decided advantage to know just by looking at a set of figures whether we should add or subtract to incorporate them properly in our computations.

Insert Recapitulation Figures

In the fourth column are inserted the figures from the Recapitulation of Expenses shown in Chapter XI, as follows:

Labor	\$1,200
Supplies	400
Fire Insurance .....	...
Interest	300
Sales	2,500

We have taken inventories of Supplies and of Brick; let us assume that these are \$850 and \$1,200 respectively. The physical inventories are ascertained by going thruout the plant and ascertaining what is on hand, then evaluating them in the office.

Interest on Mortgage

We easily see that whereas the amount of prepaid fire insurance on the first of the month was \$360, it is \$330 at the close. Also, that the interest on the mortgage, which had mounted to \$300 at the close of the month, has been paid, leaving no interest accrued and unpaid.

Extending net totals into the eighth column, we obtain the following results:

Labor	\$1,200
Supplies	500
Fire Insurance	30
Interest	50
Cost of Brick Made.....	1,750

Inserting this amount in Group II we get as the Cost of Brick Sold, \$2,280.

Find Net Profit

From Group III we find the Net Profit to be \$220.

We now take the trial balance for February 28, omit the Expenses and Sales accounts, substitute the values on February 28 of the Inventories, Deferred Charges and Accrued Liabilities, and insert the accumulated profits for the two months, arriving at the following results:

Accounts Receivable	\$ 6,350
Bank	1,425
Property	50,000
Inventory, Brick	1,200
Inventory, Supplies	850
Deferred Charges	330
Accrued Liabilities	\$
Accounts Payable	800
Mortgage	9,000
Capital Stock	50,000
Profit and Loss.....	355
	<hr/>
	\$60,155 \$60,155

At the risk of tedious repetition we again point out that these Profit and Loss Statements and Financial Statements are prepared from data secured from the General Ledger Trial Balances and from the Recapitulation of Expenses, coupled with supplementary figures, without in the least altering the General Ledger or modifying the work done in posting the General Ledger.

General Ledger Not Altered

When an officer on ship board observes the altitude of the sun with a sextant, the angle is first read from the instrument; then correction is made for the height of the deck above the sea and refraction of the atmosphere, eventually arriving at the true angle of elevation. But the officer does not alter the instrument to conform to the corrected result.

In like manner, we take an observation of the business as shown by the General Ledger Trial Balance and apply corrections necessary to tell the position of the ship; and having secured this information we stop without altering the General Ledger itself to conform to the revised figures.

Depreciation

For instance, consider the question of Depreciation. Some companies charge the same amount each month, while others charge an amount based on the output. Without entering into the merits of the two methods, let us suppose that beginning January 1 we are to charge off Depreciation at the rate of \$500 per month. In such a case some companies make an actual journal entry charging this amount to the operating expenses each month and crediting a Reserve for Depreciation. This is entirely unnecessary. We need only insert \$500 in the Accrued Liabilities column at the close of January, \$1,000 at the end of February, and so on to the close of the year, when we make one single entry in the Operating Register, charging \$6,000 to Expenses and crediting Reserve for Depreciation.

Cutting Entries from 12 to 1

In this manner, we have incorporated each month in the Cost of Brick Made, a charge of \$500 for Depreciation; but we make one entry a year in the General Ledger instead of 12. And as we have seen, the same is true for interest on a mortgage or on bonds; we make entries only when payment is made. It holds for prepaid fire insurance and accrued compensation insurance premiums. It applies to obsolescence, taxes, and the amortization of bond premium or discount. But the simplicity of the method of handling the General Ledger is undisturbed.

There is an old story of a man going to mill on horseback, carrying a sack of grain on his shoulder; he claimed that the horse had enough to do to carry him without having to carry the grain in addition. Many accountants go to the opposite extreme in assuming that a charge can get into monthly costs only by being loaded first onto the General Ledger.

Of course we can line up the General Ledger at any time to conform to the current financial statement by making the three entries referred to in chapter XII; we can even

make one complex entry serve instead of three; but we readily see that we do not obtain any additional information. The information the General Ledger apparently gives after closing is the same information we had to possess before making the closing entries.

Moreover, there is no logical necessity for making these entries monthly, because the General Ledger can only represent the approximate status at midnight on the last day of the month and ceases to represent it accurately five minutes after the whistle blows on the following morning.

Monthly Inventories

While not urging the taking of monthly physical inventories, it is not amiss to point out that it is not 12 times as much work to take monthly inventories as to take annual inventories. Many items recur and much of the information is more easily obtained because it is never a month old. In the case of annual inventories, items are from one to eleven months old, requiring one to dig back thru records of many months.

Many of the other elements of cost such as insurance can be determined merely by inspection, when Profit and Loss Statements are prepared monthly.

Good Basis for Cost Finding

For those who use or contemplate using standard costs, with all their manifold advantages, the figures in column eight of the monthly statement furnish a basis which it would

be hard to duplicate; and this system of accounting affords a decidedly good basis for genuine twentieth century cost finding.

It has probably been noticed already that the Recapitulation of Expenses Sheet is not really required where one makes up monthly Profit and Loss Statements. All one needs to do is to copy the figures each month into column four instead.

When it comes to preparing the Annual Profit and Loss Statement, we simply begin by using the figures in the first three columns under January 1; then insert in the fourth column the totals of all figures in the fourth column for each month; then copy the figures from the fifth, sixth and seventh columns under December 31; and, if we have performed our work correctly, the figures in the eighth column will agree with the totals of the corresponding items for the 12 months.

Cutting Out Trial Balance

In like manner, it is not necessary to prepare the Monthly Trial Balance Sheet when one prepares Monthly Financial Statements. One sets down the current inventories, deferred charges and accrued liabilities as shown in the current Monthly Profit and Loss Statement; the accumulated profit or loss for the year to date; he omits the Expenses and Sales accounts; the other figures in the case here cited are taken directly from the General Ledger; and if the work has been properly done, the Debits and Credits will balance.



Ceramic Engineering School for Georgia Assured

A PERMANENT ORGANIZATION of the brick manufacturers of Georgia and other manufacturers and producers interested in the clay products industries in the state, was perfected at a called meeting held in Atlanta during April, and definite arrangements made for the establishment at the Georgia School of Technology, in Atlanta, of a school in ceramic engineering.

B. Mifflin Hood, president of the B. Mifflin Hood Brick Co., of Atlanta, was named general chairman of the permanent organization, and J. D. McCartney, of Savannah, Ga., secretary. The motto of the organization is "Educate Georgia Boys to Develop Georgia."

Donate Materials for Building

The various companies represented at the meeting donated a large part of the building materials and money that will be required for the construction of the school, among them being \$1,500 worth of building materials by the B. Mifflin Hood Brick Co.; \$1,500 worth of laboratory equipment by the Central of Georgia Railroad; and \$1,000 worth of equipment by the Atlanta Terra Cotta Co. Other contributions of a similar nature are expected from the affiliated industries thru-out the state.

Another state-wide meeting is to be held at the Georgia School on May 29, at which time committees will be appointed for conducting a state-wide campaign for support of the proposed school, which, it is expected, will be ready within another year.

Those in charge of the ceramic engineering school estimate that construction of the first unit, including laboratories, class-rooms, and so forth, will cost about \$18,000 to \$20,000, and that maintenance will be around \$8,000 per year. It is proposed to build the school so that other units can be added later on.

The campaign to secure the needed funds is already under way, and Mr. Hood reports is meeting with such success that the project now has become an assured fact. He states, too, that at a further meeting to be held May 22 in Atlanta the final arrangements and plans for the school are to be discussed, and that it will probably be known at that time just when work will be started.



NATIONAL BETTER HOMES' WEEK

National Better Homes' Week will this year be observed June 4 to 10 and will offer merchandisers of everything that goes into the construction, equipping, furnishing and decorating of the home an opportunity to participate in this great national movement for better American homes. The program for the Better Homes' week will be similar to that given last year. President Harding has indorsed this campaign in the following words: "I know of no matter so intimately connected with the life of our people to which we can give greater devotion and service for fundamental improvement than the upbuilding not only of individual home ownership but the actual improvement of our homes."



WANT A. F. B. A. TO GO TO ATLANTA

Atlanta, Ga., brick manufacturers and dealers, headed by B. Mifflin Hood, president of the B. Mifflin Hood Brick Co., and Victor H. Kriegshaber, of Victor H. Kriegshaber & Sons, have been cooperating with Fred Houser, secretary of the Atlanta Convention Bureau, for some time in the effort to secure the annual convention of the American Face Brick Association. A formal invitation was extended the members at the convention some time ago by Mr. Kriegshaber.

The Dealer—He is Panned and Praised

How the Manufacturers Feel About Selling Thru the Dealer—Consensus of 80 Clay Men's Opinions

LIKE THE DEVOTED PARENT who chastises the children he loves, Brick and Clay Record has censured the clay products industry rather heavily in the last few issues for not taking advantage of its marketing possibilities by using the dealer as a medium. But to this question, like to practically every other one, there are two sides. The manufacturer also has a kick coming and it would hardly be fair to present the dealer's side and to ignore the voice of the manufacturer. For this reason a questionnaire was sent to Brick and Clay Record's readers asking them how they felt on the question of marketing thru the dealer.

Now Manufacturer's Turn

The dealer's side of the question has been presented and it is now the manufacturer's turn to air his opinion and, judging from the response to the questionnaire, these opinions are many and decided. And so we have a situation which

the manufacturer to create a demand for his product and to the dealer to stock the manufacturer's goods, so that the consumer can go to him and get what he wants, not what the dealer wants to sell him. If the dealer handles clay products he should be willing to push them, otherwise the manufacturer is justified in using other selling media to get his product into the hands of those who want it.

Dealer Should Get 33 1/3 Per Cent.

On the other hand, the dealer can not be expected to push the sale of clay products unless he can make money on them and a large enough profit to equal what he makes on burned clay's competitors. The dealer needs a gross profit of 33 1/3 per cent. on those products which he is required to stock and carry for some time. On direct to the job shipments a lesser percentage is required to make the handling profitable. The dealer can not possibly have any objections to handling clay products if he makes as much money on them as on competitive lines.

The questionnaire which Brick and Clay Record sent out recently to about 300 manufacturers brought out some very interesting information. Returns were sufficiently large to count the conclusions as representative of conditions thruout the clay industry. Naturally there are some localities to which the figures will not apply.

Tonnage Reported on Questionnaire

The total tonnage produced annually by the manufacturers who returned the questionnaire is as follows:

	Amount Produced by Manufacturers Reporting	Percentage of Total 1921 Production
Common Brick.....	392,700,000	8.6
Face Brick.....	484,050,000	55.4
Fire Brick.....	40,500,000	6.4
Hollow Tile (tons).....	693,800	34.3
Drain Tile (tons).....	178,332	18.6

Of the tonnage represented in the table above the following amount is sold thru dealers:

Common Brick.....	204,990,000, or 52 per cent.
Face Brick.....	388,112,000, or 80 per cent.
Hollow Tile (tons)...	404,500, or 57 per cent.
Drain Tile (tons)...	125,586, or 72 per cent.

According to the figures above over half of all the common brick, face brick, hollow tile and drain tile produced by the manufacturers who answered the questionnaire, are sold thru the dealer. This proves beyond a question of doubt that the dealer is essential as a sales medium for the clay products manufacturer.

How Many Protect the Dealer

Question 2, "Do you protect the dealer on sales in his territory made direct by you?" brings out the rather startling fact that, despite the opinion which is general among small town dealers, 78 per cent. of the 80 manufacturers reporting do protect their dealers. A little less than nine per cent. do not protect, and six per cent. of them protect the dealer conditionally.

"Evidently," thinks the reader, "the figures and statements which have been published heretofore and which tend to show that manufacturers do not protect their dealers, were wrong."

Please Discuss These Questions Fully

1. What per cent. of your product do you sell thru dealer? Common Brick 60 ?
Face Brick 40 ? Fire Brick dont make, hollow Building Tile 60 ?
Drain Tile dont make ? Sewer Pipe dont make ?
2. Do you protect the dealer on sales in his territory made direct by you? Yes ?
3. Are you in favor of 100 per cent. dealer distribution? Where he Co-operates with us.
4. How many dealers are selling your product? 80 dealers stock our material
5. Are these dealers in large towns (over 10,000) or small towns or both? Both
6. Do you sell much to towns under 5,000 population? Mostly
7. What per cent. of your output? 60%
8. Do you prefer to sell thru dealer or direct? Dealer in line & Com. Brick.
9. Please give reasons. If he has it in stock he gets more sales
10. What discount do you quote dealer on direct price? 5% Not competent or do not in competition with the information you give will you please cooperate with us by discussing these questions freely and frankly? You may even omit your name if you so desire. All are are anxious about it to get the data.
11. What should the manufacturer do to aid the dealer sell clay products? Face Brick 3 mill
12. What is your average annual output of Common Brick 2 million ? Face Brick 3 mill
13. Fire Brick None ? Hollow Building Tile 800,000 ? Drain Tile None ?
14. Sewer Pipe None ?
Name _____
Address _____
The back of this sheet is supplied if necessary
Your name will be held strictly confidential and used in no way in connection with the information you give will you please cooperate with us by discussing these questions freely and frankly? You may even omit your name if you so desire. All are are anxious about it to get the data.
Brick and Clay Record,
407 S. Dearborn Street,
Chicago, Illinois

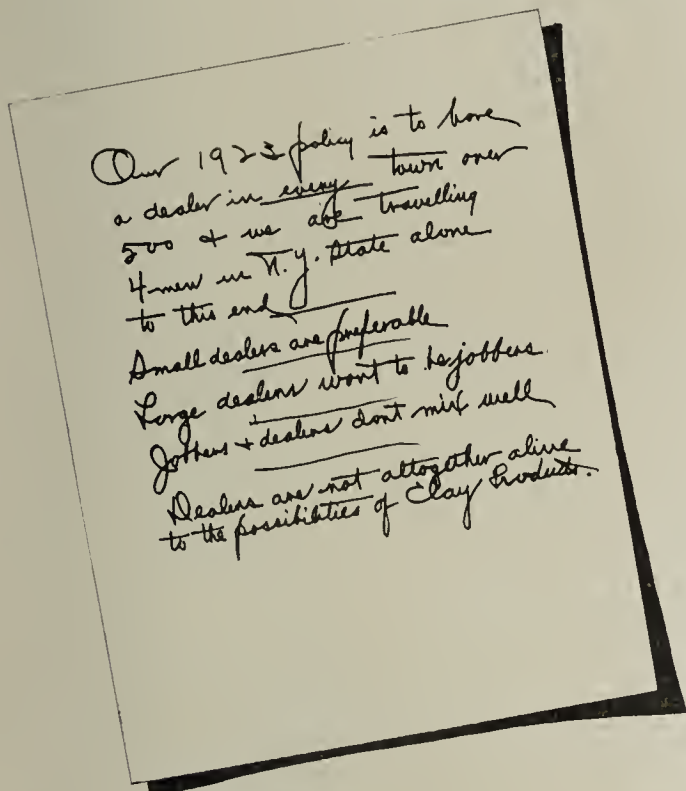
Fac-Simile of One of the Questionnaires from Which the Material for This Story Was Obtained.

is very common in controversies, the dealer says the manufacturer is to blame and the manufacturer says the dealer is at fault. Without attempting to say which of the two is in the right, the fact remains that both are absolutely essential to modern business and to each other. The manufacturer must sell the bulk of his output thru the dealer, and this man, on the other hand, must have something to sell or he has no reason for existing.

The dealer and manufacturer are both human, and one is, therefore, no worse than the other. It should be remembered that both are in business for profit and not because the doctor ordered it. The only way in which this problem can be worked out to the satisfaction of both is if everybody plays fair—if that isn't done there won't be any game. It is up to

Only 16 Per Cent. Sold in Small Towns

But wait, before you proceed too far along this line of reasoning. These statements pertained for the most part to the small town, under 5,000 population, a market which the face brick, common brick and hollow tile manufacturers have neglected to a great extent. Question 6 asks, "What per cent. of your output do you sell in towns of less than 5,000 people?" And the answers to this question vindicate the statements appearing in previous issues of Brick and Clay Record. They show that only 24 per cent. of all the common brick, face brick, drain tile and hollow tile manufactured is sold in com-



This Comment Was Received on the Back of a Questionnaire. In Those Few Words This Manufacturer Practically Covers the Whole Dealer-Manufacturer Controversy. Probably One Idea Should Be Added: "Manufacturers Are Not Altogether Alive to the Possibilities of Dealer Distribution."

munities of less than 5,000 population. This figure at first glance seems large, but it will be seen that drain tile is included and naturally the market for this product is almost wholly in the rural communities. Taking the drain tile out of the figure the percentage of ware sold in towns under 5,000 drops down to 16.5 per cent. And yet there are 130,735 such cities in this country.

Big Market Not Developed

This means that 83.5 per cent. of all common brick, face brick and hollow tile manufactured is sold for use in cities which contain considerably less than half of the country's population. Think of the enormous market which has been practically untouched and which the manufacturer can easily reach thru the building supply dealer.

Another question asked manufacturers, whether they were in favor of 100 per cent. dealer distribution, to which 41 out of the 80 reporting answered "yes" and 16 said "no." The other 23 were in favor under certain conditions. Some were in favor of 100 per cent. dealer distribution, "except in local territory," "if it could be made a go," "where the dealer cooperates with us," "not on drain tile," "wherever real representation is to be had," "if dealer will work and really sell our products," "where proper connections can be made," and various other reasons were given.

Have You Enough Dealers?

Question 4 asks, "How many dealers are selling your product?" The answers bring out a remarkable range

varying from an extreme of 750 dealers to a minimum of 1. A manufacturer should aim to cover every town of 500 or more inhabitants in his territory, which would mean a list of dealers approximating 200. According to the returns from the questionnaire the manufacturer who has 200 dealers is the exception rather than the rule, out of the 80 reporting there being only ten who have that many dealers.

Manufacturers Prefer Dealer

The answers received to Question 7 indicate that the majority of manufacturers prefer the dealer as the distributing medium for their product. 59 stated that they preferred to sell thru the dealer, while only ten would rather sell direct. The other 11 imposed various conditions before committing themselves to dealer distribution.

That all manufacturers have not studied the question of dealer distribution thoroly is evidenced by the reason given for preferring direct or dealer distribution. One manufacturer, for instance, states that selling thru the dealer would increase the price, while others prefer to sell thru the dealer because it would, in their estimation, decrease the price to the consumer.

Is Dealer Cheaper or More Expensive

When the situation is analyzed it amounts to this. If the manufacturer desires to cover every small town thoroly there is only one economical way in which it can be done, and that is thru the dealer. To maintain a sales force large enough to handle all such business would be out of the question. It is therefore cheaper to market thru the dealer. If, on the other hand, the manufacturer is content to take care of his local demand and occasionally ship out a carload of brick for some job outside, he might be able to sell it cheaper than if he gave a dealer a commission. His manufacturing cost would mount, however, because he would not be getting the volume of sales necessary to keep his plant at full production.

If a feeling of mutual confidence and good will could be established between the manufacturer and dealer with the assurance that either side would treat the other fairly the manufacturer-dealer question would be solved. No manufacturer can be expected to protect a dealer who will do nothing to sell clay products, who permits the manufacturer to do all the work in making a brick or tile sale and then expects a commission, or one who will agree to handle a brick or tile merely to get that particular manufacturer out of the way as a competitor for some other product.

A Legitimate "Kick"

The following comment, received from a southern manufacturer, expresses in a nutshell the grievance of the manufacturer against a large number of dealers: "We have little patience with the average lumber and material dealer in small towns. He is unwilling to do anything, even answer letters. When we do all the work is there any reason to hand the dealer a commission just because he is located in the town? Should he not earn what he gets?"

This company prefers to sell thru the dealer and is in favor of 100 per cent. dealer distribution "if the dealer will work and really sell our products."

Another company, this time in the state of Iowa, writes, "We feel that a dealer is entitled to protection, but at the same time we think he has no right to engage in business unless he renders service to the consumer and manufacturer. When he ceases to render service to the manufacturer, he is of no use to us, and we had better start selling direct. Many dealers fail to render this service, and even refuse to carry clay products in stock, but want to sell them in carload lots only. Such dealers are not entitled to recognition, altho we have protected them in the past in order to hold to our dealer sales policy."

Tabulated Replies on the Dealer Question

AVERAGE ANNUAL OUTPUT					PER CENT. SOLD THRU DEALER					Do You Protect Dealer on Direct Sales	How Many Dealers Sell Your Product	Are Dealers in Large Towns (over 10,000) or Small Towns	% Out-put Sold in Towns Under 5,000 Population	Do You Prefer Dealer or Direct Sales	
Common Brick M	Face Brick M	Fire Brick M	Hollow Tile (Tons)	Drain Tile (Tons)	Common Brick	Face Brick	Fire Brick	Hollow Tile	Drain Tile						
.....	3,000	5,000	.....	.....	.....	80	10	.....	.....	Yes.....	24	Large....	10	Fire brick direct—face brick dealer.	.....
.....	13,000	5,000	36,000	240	Small	part	of	Output	.....	Yes.....	12	Large....	.....	Direct, except in distant territory..	Serve customer
90,000	10,000	.....	70,000	.....	80	70	.....	90	.....	No.....	200	Both....	10	Dealer.....	Prompt payment
.....	9,000	4,500	.....	.....	.....	.....	.....	.....	.....	Yes.....	40	Large....	10	Dealer.....	Dealer on group
30,000	.....	.....	30,000	.....	70	.....	.....	50	.....	No.....	20	Large....	5	Dealer.....	sales, if protection
1,000	5,000	.....	.....	20,000	75	100	.....	.....	.....	Yes.....	25	Both....	10	Dealer 100%.....	Uniform settlement
10,000	500	.....	1,500	.....	25	.....	.....	20	35	Yes.....	125	Small....	90	Dealer.....	Less expense—b
.....	.....	.....	30,000	5,000	.....	.....	.....	95	95	Sometimes	.....	Both....	.....	Dealer.....	Produces greater
2,000	6,000	.....	.....	.....	50	100	.....	.....	.....	Yes.....	.....	Both....	90D.T. {	Dealer 100%.....	Less expense—b
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Yes.....	14	Large....	5 H.T. }	Dealer 100%.....	Better accounts
1,500	14,000	.....	.....	.....	80	90	.....	.....	.....	Yes.....	45	Both....	5	Dealer 100%.....	Better representation
5-6,000	.....	.....	.....	.....	65	.....	.....	.....	.....	Yes.....	20	Both....	5	Dealer 100%.....	Safer accounts—
4,000	.....	.....	.....	.....	5	50	.....	.....	.....	Partly.....	4	Large....	1	Both.....	More dependable
2,000	.....	.....	100,000	.....	50	.....	.....	50	.....	Yes.....	10	Large....	1	Dealer 100%.....	Would increase
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Yes *.....	20	Both....	10	Dealer 100%.....	Collections and
.....	23,000	.....	.....	.....	.....	85	.....	.....	.....	Yes.....	75-100	Both....	15	Both.....	Must protect out
8,000	2,000	.....	24,000	.....	80	90	.....	80	75	Yes.....	250	Both....	75	Dealer 100%.....	Best business—
.....	.....	.....	7,500	.....	.....	.....	.....	100	100	Yes.....	30	Small....	100	Dealer 100%.....	Easier collection
3,000	.....	.....	.....	.....	90	.....	.....	85	80	Yes.....	100	Small....	75	Dealer 100%.....	Better accounts
.....	.....	.....	20,000	120	.....	.....	.....	.....	.....	Yes.....	750	Both....	.....	Dealer 100%.....	Rather have him
1,000	1,000	.....	5,000	15,000	85	95	.....	75	95	Yes.....	300	Both....	75	Dealer 100%.....	Better pay and
1,000	.....	.....	500	400	20	.....	.....	25	10	Yes.....	7	Small....	70	Dealer 100%.....	Mostly carload
.....	.....	.....	2,000	.....	.....	.....	.....	95	.....	Yes.....	200	Small....	100	Dealer.....	.....
2,000	.....	.....	700	.....	80	.....	.....	70	.....	Yes.....	42	Small....	.....	Dealer 100%.....	Quicker cash re
2,000	.....	.....	15,000	30,000	90	.....	.....	90	90	Yes.....	600	Small....	90	Dealer 100%.....	More substantia
10,000	.....	.....	.....	.....	60	.....	.....	.....	.....	Yes.....	70	Both....	30	Dealer 100%.....	Credits better..
100	.....	.....	50,000	30,000	90	.....	.....	90	85	Yes.....	75	Both....	70	Dealer 100%.....	Less trouble—m
20,000	10,000	.....	.....	.....	.....	40	.....	.....	.....	Yes.....	25	Large....	60	Direct.....	Want brick prop
.....	9,000	.....	.....	.....	.....	100	.....	.....	.....	Yes.....	4	Large....	10	Dealer 100%.....	Collections mor
9,000	1,000	.....	10,000	.....	50	100	.....	75	.....	Yes.....	45	Both....	20	Dealer 100%.....	Better credit—e
.....	9,000	.....	.....	.....	.....	100	.....	.....	.....	Yes.....	102	Both....	50	Dealer 100%.....	Dealer can sell
8,000	6,000	.....	.....	.....	60	10	.....	40	98	Yes.....	500	Small....	15	Direct.....	Dealer best if a
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	No.....	1	Small....	.....	Direct.....	Would increase
2,000	3,000	.....	30,000	4,000	75	.....	.....	.....	.....	Yes and No.....	.....	Small....	50	Dealer.....	Better collection
.....	.....	.....	800	.....	60	25	.....	60	.....	Yes.....	80	Both....	60	Dealer.....	More sales if he
30-50,000	.....	.....	.....	.....	5-10	.....	.....	.....	.....	No.....	25	Both....	2	Direct.....	Better prices—c
9,000	1,000	.....	.....	.....	5	5	.....	.....	.....	No.....	3-6	Both....	25	Direct.....	Demand justifi
.....	.....	.....	25,000	.....	.....	.....	.....	50	.....	Yes.....	30	Small....	.....	Dealer.....	Dealer and job
.....	.....	.....	800	3,000	.....	.....	.....	40	.....	Yes.....	15	Both....	90	Dealer.....	.....
.....	.....	.....	60,000	.....	.....	.....	.....	90	.....	Yes.....	.....	Large....	.....	Dealer 100%.....	Fewer accounts
.....	.....	.....	.....	5,500	.....	.....	.....	75	.....	Yes.....	25	Small....	90	Dealer.....	Dealer can give
12,000	24,000	.....	.....	.....	100	100	.....	.....	.....	Yes.....	.....	Both....	.....	Dealer.....	1. Entitled to b
.....	20,000	.....	.....	.....	.....	100	.....	.....	.....	Yes.....	200	Both....	10	Dealer 100%.....	Only way to est
.....	5,000	.....	.....	.....	.....	100	.....	.....	.....	Yes.....	21	Large....	10	Dealer 100%.....	.....
.....	10,000	.....	.....	.....	.....	90	.....	.....	.....	Yes.....	45	Large....	.....	Dealer 100%.....	Less trouble....
.....	10,500	.....	.....	.....	.....	90	.....	.....	.....	Yes.....	20	Both....	25	Dealer 100%.....	Dealer is on job
300	3,000	.....	.....	.....	1	90	.....	.....	.....	Yes.....	15	Large....	5	Dealer 100%.....	Sure and quick
9,000	21,000	.....	.....	.....	75	95	.....	.....	.....	Yes.....	50	Large....	5	Dealer 100%.....	Dealer's influen
10,000	2,000	.....	.....	.....	.....	75	.....	.....	.....	Yes.....	100	Both....	.....	Dealer 100%.....	Easier handled—
.....	20,000	.....	.....	.....	.....	75	.....	.....	.....	Yes.....	100	Both....	.....	Dealer.....	Direct in local
.....	30,000	.....	.....	.....	.....	100	.....	.....	.....	Yes.....	200	Both....	10	Dealer 100%.....	Less expense—s
3,000	55,000	.....	.....	.....	90	90	.....	90	.....	Yes.....	125	Both....	5	Dealer 100%.....	Less accounting
.....	.....	.....	1,500	.....	.....	.....	.....	.....	.....	Yes.....	600	Both....	35	Dealer.....	Better service t
.....	.....	.....	75,000	.....	.....	.....	.....	None	.....	Yes.....	.....	Large....	.....	Distributor.....	.....
.....	.....	.....	40,000	.....	100	.....	.....	100	.....	Yes.....	4	Large....	.....	Dealer 100%.....	Cost to consum
1,000	2,000	10,000	.....	.....	None	None	None	25	.....	Yes.....	None	Large....	10	Direct.....	Our trade won't
.....	12-20,000	.....	40-50,000	.....	.....	60	.....	.....	.....	Yes.....	19	Large....	.....	Dealer.....	On the job—be
.....	6,000	.....	.....	.....	.....	35	.....	.....	.....	Yes.....	4	Large....	.....	Dealer 100%.....	Better, more co
.....	40,000	.....	.....	.....	.....	95	.....	.....	.....	Yes.....	.....	Both....	50	Dealer 100% *.....	.....
3,300	.....	.....	.....	.....	20	.....	.....	.....	.....	Yes.....	5	Both....	3	Both.....	Larger volume.
.....	.....	7,500	.....	.....	.....	.....	None	.....	.....	Yes.....	.....	.....	.....	Direct.....	Get better acqu
2,000	6,000	.....	.....	.....	None	75	.....	.....	.....	Yes.....	9	Large....	.....	Dealer 100%.....	Collections easi
.....	10,000	.....	.....	.....	.....	100	.....	.....	.....	Yes.....	70	Both....	.....	Dealer 100%.....	Know architect
.....	8,000	.....	.....	.....	90	98	.....	.....	.....	Yes.....	8	Both....	2	Dealer.....	Less accounts—
10,000	.....	.....	.....	.....	None	.....	.....	.....	.....	Yes.....	.....	Both....	10	Dealer 100%.....	Better supervisi
3,000	24,000	.....	.....	.....	None	20	.....	.....	.....	Yes.....	30	Both....	.....	Dealer 100%.....	Can always be
5,000	550	.....	.....	.....	10	5	.....	.....	.....	Yes.....	5	Both....	75	Either.....	.....
2,000	5,000	.....	.....	.....	20	80	.....	.....	.....	Yes.....	40	Both....	.....	Dealer 100%.....	Collections less
1,000	23,000	500	.....	.....	None	98	None	.....	.....	Yes.....	30	Large....	.....	Dealer 100%.....	.....
1,000	1,500	500	.....	.....	None	25	95	.....	.....	Yes.....	16	Both....	20	Dealer *.....	.....
30,000	20,000	.....	.....	3,000	65	80	.....	.....	5	No.....	.....	Small....	95	Direct.....	Farmers pay sa
4,000	.....	.....	30,000	.....	75	.....	.....	80	.....	Yes.....	75	Both....	35	Dealer.....	Credit rating m
5,500	2,500	.....	.....	.....	50 to 75	75	.....	.....	.....	Yes.....	100	Both....	.....	Dealer.....	In touch with
3,000	.....	.....	.....	.....	90	.....	.....	.....	.....	Yes.....	26	Both....	30	Dealer.....	Unsatisfactory
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Yes.....	.....	Both....	40	Dealer 100%.....	.....
500	1,000	.....	.....	.....	90	90	.....	.....	.....	Yes.....	1	Both....	25	Dealer 100%.....	Quick returns.
12,000	.....	.....	.....	.....	100	.....	.....	.....	.....	Yes.....	50	Both....	.....	Dealer 100%.....	Fewer accounts

*Depends on his interest.

*If plant tonnage could be taken—otherwise direct.

om 77 Manufacturers

(Continued from page 781)

	What Differential do You Quote the Dealer	What Should Manufacturer do to Help the Dealer Sell Clay Products
	Fire brick, none..... \$2-\$5 M face brick..... 10%..... 50c C. B.—5 pts. tile..... \$2 M F. B.....	Furnish prospects received from Ass'n. Cooperate in every way. Give service and protect.
touch. Will push	5%..... 10%.....	Advertise, refer inquiries. Cooperate—give service.
factory.....	20%..... Dealer adds comm.....	
	50c ton.....	Cooperate. Advertise.
tions.....	\$1 M..... 50c M.....	Protect and cooperate. Advertise. Give quality and service.
	10%.....	All possible. Square deal and best profit. Advertising. Make him keep stock.
ct.....	15%..... 15%.....	Dir. should have good stock, samples, literature.
tlement.....	Have only dealers price	
dit risk.....	About 10%..... 15%.....	Advertise. Advertise. Keep each other posted.
cost.....	\$1tonH.T.,\$1C.B.,\$5F.B.	Advertise, furnish literature.
as large.....	25%..... \$2 M brick, \$7 Tile..... 40c ton.....	Recommend. Everything that he can.
	5%.....	Don't know.
sumer.....	5%..... 5%.....	Cooperation—furnish literature. Advertise.
on—more business.	10%.....	Call on him, help with large jobs.
dable; 3. On ground.	\$1 M C.B., \$2 M F.B.....	Cooperate.
t business.....	10%.....	Teach public value and use of clay products.
	Dealer adds comm.....	
	Dealer adds comm.....	
r care of clients.....	5%.....	Advertise. Back the dealer. Good brick and good service. Service. Advertise—refer all inquiries to him.
dealer carries acc't.	\$1 M.....	Give service. Help him on jobs.
tings.....	Varies.....	Give full information on products. Cooperate with dealer who pushes tile. Make better goods cheaper.
ore satisfactory.....		
ation.....	Dealer fixes price..... Dealer fixes price.....	Give good service. Protect—follow out suggestions.
s.....	\$1 M.....	*Cooperation—frankness—fair dealing.
ults.....	\$4 M.....	Advertise.
s, better service.....	Dealer fixes price..... Quote thru dealer.....	Give literature—advertising of own product. Advertise.
nd prospects.....	10%.....	
	\$2 to \$4 M.....	Call on him and talk it over.
		Do as he agrees to do.
	15%.....	Join A. F. B. A. Information on use of product.
		Deliver the goods.
pay.....	10%..... 10 and 4%.....	Advertise.
a none.....	50c C. B., \$2 F.B..... 25c M.....	Assist in every way possible. Give service.
travel.....	10%.....	

Here are some of the experiences of a plant in the South:
"We have a good many dealers who do not take an interest in the sale of clay products and do not use any effort to further these sales, but after all the effort has been made on our part and the sales are just about made and completed, they come in at the eleventh hour and expect a commission on the business. Provided the dealers would properly equip themselves for the handling of clay products by having salesmen who thoroly understand the materials and would push the sale of the materials, we would then be in favor of 100 per cent. dealer distribution."

A manufacturer in Illinois, in giving his reasons for selling direct instead of thru the dealer, unwittingly gives the strongest reason why it is necessary to make a booster of the dealer. This manufacturer says:

"We do not favor selling thru dealers because all dealers are primarily lumber dealers and, in the case of hollow building tile and brick, would push the sale of lumber to the detriment of clay products."

One Manufacturer's Dealer Policy

Satisfactory marketing thru the dealer is absolutely essential for all companies who desire to branch out and increase their markets. It is not only possible, but it is being done right now by a large number of plants who are progressive enough to recognize this method of marketing as the best. One thing that is necessary, of course, is to formulate a policy with regard to the dealer which is fair to him and to yourself. There is a manufacturer of face brick in the Middle West who has been very successful in marketing his product thru the dealer. He outlines his dealer policy* as follows:

"We protect the dealer on sales made in his territory direct by us when we have made with that dealer an agreement to do so. This agreement will not be made by us unless we believe the dealer will give us satisfactory representation. This satisfactory representation is a rather elastic situation. In every case it requires that he have our sample brick on display and that he make an effort to sell our product and acquaint us of the jobs coming up in his territory and cooperate with our salesman when requested.

Urges Dealer to Stock

"In the small towns we require that the dealer handle no other brick which is similar or at all competitive to ours. In the larger cities where we deal thru concerns handling face brick largely we, of course, do not attempt this restriction. We urge that the dealer stock our product, altho in the smaller towns we do not insist on this. We also take into consideration whether the dealer has been handling our brick for a considerable period of time or whether it is a new territory and the idea of selling brick is new and strange for the dealer. In the latter case we do not push him too strongly on the stocking proposition altho we are great believers in this.

"We also consider location. In other words, we would expect a dealer in a small town which had a more favorable freight rate than from any other competing plant, to stock more heavily than a dealer in a larger town where he was up against more severe competition."

What Should Manufacturer Do?

After reading the replies from some 80 manufacturers one can not help but come to the conclusion that the question of marketing clay products thru the dealer does not present nearly so insurmountable a difficulty as it would seem. The solution to the problem is contained in the answers to the question, "What should the manufacturer do to help the dealer sell clay products?" The consensus of opinion seems to be that manufacturers should advertise and cooperate with the dealer.

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Of these two, advertising and cooperation, the first is simple enough. There is national advertising by the associations and local publicity by the individual plants. The second phase, however, is broader and not so easy to define. Looking down the line in the last column of the table here printed it will be noticed that there are presented a number of different ideas regarding the ways in which the manufacturer should help the dealer, and most of them can be classed under the head of "cooperation." For instance, right near the top of the column a manufacturer says, "Give service and protect." Then farther down another man urges that the dealer be given a "square deal and best profit." Still another believes all inquiries should be turned over to the dealer for him to follow up.

Help Dealers If You Would Be Successful

Those manufacturers who have made the biggest success of dealer distribution are the ones who have taken greatest pains to help their dealers. It is of prime importance that the manufacturer make his dealer a booster because the personal element enters into the matter to a very great extent. It is true enough, the manufacturer can take an inquiry and write his prospect a nice, "Dear Sir" letter, telling him that "we believe you ought to use our brick because they are good, beautiful and cheap," but he can't go to his prospect like the dealer, slap him on the back and say, "Now, Joe, you ought to build your house of brick or tile, because even if it costs a little more you'll get that extra cost back," and so forth. And that is what will sell Joe on brick.



ALUMINUM CHEMICALS FROM CLAYS

In 1922, 281,480 short tons of aluminum salts, valued at \$8,813,000, were produced from bauxite and aluminous clays,

according to figures compiled by the Department of the Interior, thru J. M. Hill, of the Geological Survey. These figures are compared by Mr. Hill with a production of 184,820 short tons in 1921, having a value of \$7,546,000. In 1922 there were consumed in the manufacture of aluminum salts 162,980 tons of bauxite, valued at \$2,305,000, and 11,428 tons of high-alumina clay, valued at \$114,280, as compared with 64,380 tons of bauxite and 9,830 tons of high-alumina clay in 1921. The value of the new aluminum, the metal, produced in 1922, was \$13,622,000, an increase of about 25 per cent. over the value in 1921.



SOUTHERN LABOR TO STAY IN SOUTH

Southern state labor supply is playing its part to keep 1923 construction costs high, says the Dow Service report of April 21.

There is no law preventing the employment in any one state of any quantity of labor needed for work in another state. But there might just as well be, if the experience of building material manufacturers seeking help in certain southern states this spring indicate anything at all. Brick manufacturers and others are already convinced that states located south of the Mason-Dixon line are prepared to go far this year to prevent wholesale raids on their labor supply to make up for the scarcity of Slavs, Hungarians, Finns and others barred by immigration laws, normally preferred for work on northern brick plants, cement plants, steel mills, terra cotta plants, quarries, and so forth.

Whole consignments of laborers are arranged for shipment but somehow they do not arrive. It is the rule rather than the exception, according to the experience of building material manufacturers who at this time are striving particularly hard to keep a steady flow of brick and similar basic materials coming into this market.



South Increases Wages—Outlook Best in History

WAGES have been increased recently at the various plants in the brick manufacturing industry over the southeastern territory, and as a result brick prices have advanced sharply all along the line, rather more so, in fact, than most of the manufacturers liked to see. The wage advances were necessitated by increases recently granted by the government to its labor forces, and in the southeastern field amounted to from 16 to 18 per cent. above the existing scales. The result has been an increase in common brick prices of about \$1 per thousand, in face brick from \$2 to as high as \$5 per thousand, with tile up about six points.

Price increases, however, do not appear to have materially affected the market, for the demand continues as brisk as before for practically all burned clay products, with virtually all of the plants over the Southeast operating at full capacity and for the most part still sold ahead from 30 to 60 days. Many of the larger plants, in fact, are booking no new business at all if deliveries have to be promised before July 1.

Outlook Excellent

"The outlook for the industry," said one prominent manufacturer of Atlanta, Ga., "is the best it has ever been in the history of the brick manufacturing business in the southern field." And this opinion seems to be shared by most of the manufacturers and building materials dealers in the territory.

The freight situation has improved to a considerable extent in the last three or four weeks, and plenty of empty cars are now available for immediate shipments. The result is that stocks have been rapidly moved out of the yards over the whole district, and considered as a whole it can be said that

there are practically no reserve stocks on hand. The plants are shipping out their product as fast as it is possible to turn it out.

Hope Freight Rates Will Not Increase

No definite decision has as yet been made in the freight rate hearings recently held in Atlanta and other southern cities by the Interstate Commerce Commission, and manufacturers are anxiously awaiting a final decision in the matter. Due to recent price increases occasioned by wage advances any further increases would react unfavorably and doubtless slow up the present demand. The brick industry wants freight rates in the district to remain about as they are, while the railroads are seeking an advance that, if granted by the commission, would send prices of burned clay products still further up the ladder.

Export Business Improving

Manufacturers in Atlanta and the Atlanta office of the Bureau of Foreign and Domestic Commerce, state there has been a still further improvement also in export business the past month out of southeastern ports, with Latin-American countries taking more southern made brick from month to month. The export outlook is also the best it has ever been in the history of the industry in this section, and manufacturers are looking for a big year if things remain as they are at present.

Construction continues active over the whole South, with new records for building being established in nearly all of the larger cities of the district.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

POTTERS' ANNUAL MEETING

FOR MANY YEARS the annual meetings of the United States Potters' Association were filled with more or less of formality. A few concrete committee reports were presented at these sessions, and then the gathering was dismissed.

Today, however, there is a complete change in the complexion of these meetings. They are filled with mental meat from beginning to end, with the result that there is a closer relationship existing among the generalware pottery manufacturers of the United States than ever before. The change in the character of these meetings has been gradual, of course, but today every annual gathering of the manufacturers is looked forward to with eagerness, as it is known before hand that something new will be brought out for the benefit of the industry as a whole.

New York Meeting Is Inspiring

The Forty-Fourth Annual Meeting of the association held in the Hotel Astor, New York City, April 10, 11 and 12, proved to be the most inspiring ever arranged, and it was thru the efforts of Frank P. Judge, Jr., secretary of the National China Co., Salineville, Ohio, and for the last 15 months president of the association that so much was accomplished at the New York meeting. The program arranged by Mr. Judge was built up along the lines of commercial education. From the subject of factory costs to that of art, learned ones in their particular line of endeavor addressed the manufacturers.

George C. Mitchell New President

Departing from its usual set rule of selecting officers, the nominating committee of the association this year, of which T. A. McNicol of the T. A. McNicol Pottery Co., East Liverpool, is chairman, suggested that the eastern wing of the organization be represented in an executive way, and this report resulted in the election of the following officers: President, George C. Mitchell, of the Pope, Gosser China Co., Coshocton, Ohio; first vice-president, B. E. Salisbury, of the Onondaga Pottery Co., Syracuse, N. Y.; second vice-president, D. William Scammell, of the Maddock Pottery Co., Trenton, N. J.; third vice-president, Guy E. Crooks, Crooksville (Ohio) China Co.; secretary-treasurer, Charles Foster Goodwin, East Liverpool.

From the personnel of the research committee, the name of Ira Sproat, former chemist for the Sebring (Ohio) Pottery Co., was erased on account of Mr. Sproat retiring from that line of work to become associated with the Vanderbilt Co., clay brokers, of New York City. Mr. Judge and Thomas B.

Anderson of the Pope, Gosser Co., were added to the Executive Committee in the places of Mr. Mitchell and Mr. Scammell. No other changes in the personnel of any committee were announced.

Excellent Technical Papers Presented

The various technical papers prepared by members of the Research Committee were presented in such form so as to be distributed to the generalware manufacturers in loose-leaf form and by them to be inserted in folders for future reference. These papers covered a long variety of subjects, having to do with absorption in sagger clays, glazes and life of saggings. These printed leaves are issued by the association to its members thru the office of Secretary Goodwin.

Establishing of a cost system in generalware potteries is a matter that is being given much consideration by the manufacturers, and this subject was explained at length by E. J. Borton, of the W. N. Van Horne Co., Dayton, Ohio, who will very likely be commissioned by several manufacturers ere long to devise such systems. The question of costs with manufacturers today seems not to be the devising of a system to fit the plant, but to get a plant to fit the system. This cost system may be considered in a general way so far as the more modern pottery plant is concerned, but when it comes to an antiquated property, the situation is quite different.

May Hold Summer Meeting

It may be that the association will hold a summer meeting this year, something similar to the gatherings of the American Ceramic Society. This will be determined by the executive committee later in the season.

The association held a summer meeting in Trenton, N. J., last August a feature of the meeting being an inspection of the china plant of Lenox, Inc.

The program as presented at the meeting in New York was extremely interesting and contained many fine papers of both technical and other natures. Sessions opened in the afternoon, Tuesday, April 10, with an address by the president, F. P. Judge. This address was reprinted in part in the April 17 issue of Brick and Clay Record. The president's talk was followed by a report of the Labor Committee by W. E. Wells and a report of the Manufacturer's Cost Committee by Samuel B. Larkins. Other committee reports were those on Membership by Wm. H. Robinson, and Machinery by Marc Solon.

Chas. F. Binns Speaks

At this session also E. J. Borton read his paper on cost accounting.

On Wednesday, the remaining committee reports were turned in, being those of the Kiln and Fuel Committee, by R. H. Pass; Art and Design Committee, by W. A. Shaw; and the Research Committee, by A. V. Bleining. The papers presented at this session proved to be of great value and interest and the topics in each instance were handled by men of high calibre and considerable experience. Prof. Charles F. Binns spoke on Art and the Manufacture of Art.

Mr. Binns is director of the New York State School of Clay Working and Ceramics, Alfred. The papers presented were "Progress Report on the Use of Forced Draft in Bisque Firing," by Thomas B. Anderson; "Results of a Study on Sagger Mixtures," by F. K. Pence; "Sagger Clay Preparation of Plant No. 5 of The Homer Laughlin China Co." by C. H. Walker; "Sagger-Making Equipment at The Shenango Pottery Co.," by J. M. Smith; "Refractories for Pottery Kilns," by A. V. Bleininger.

Hear About Research Work

In addition to these papers reports on the research work at the Bureau of Standards was made by V. J. Roehm and by a representative of the Bureau. An address was made by Emile E. Watson, consulting actuary, on "Workmen's Compensation in the United States."

Sessions were continued Thursday morning at which delegates heard the report of the Transportation Committee by F. B. Lawrence and an address on the "Transportation Problems of Today" by Charles F. Donley, consulting traffic expert. The remainder of the program was carried out in executive session for active members only and included reports of a more or less confidential nature.

On Wednesday evening a splendid banquet was held at the Hotel Astor at which W. E. Wells officiated as toastmaster. There was but one speech which was made by B. L. Bennett of East Liverpool.



CAPACITY INCREASES IN THE POTTERIES

The demand for decorated dinnerware with practically every generalware pottery manufacturer in the United States is so heavy, that two firms have been compelled to arrange extension programs for their decorating departments. Combined, these additions will cost upwards of \$50,000.

In extending its production of decorated ware, the Pope, Gosser China Co., of Coshocton, Ohio, will spend about \$25,000. A two-story brick and steel addition is being built to the north side of this plant, and probably 50 additional decorators will be engaged. The second floor of this new building will be used for decorating purposes, and the first floor will be used as a warehouse. Two additional decorating kilns are also included in the extension program of this firm.

While this new construction is under way, the Crooksville (Ohio) China Co. is also spending about \$25,000 in the erection of a new decorating department warehouse extension and office building. The present office space at the Crooksville plant will be used for warehouse purposes when the new addition is finished. The commercial department will then be removed to the second floor of the new end.

The first floor of the new building will also be used in part for warehouse purposes and a part of the second floor of this end for decorating.

A similar addition is being built to the plant of the Sebring (Ohio) Pottery Co. only with this difference. This company will transfer its commercial department to the second floor of the new building, and the present commercial department and the first floor of the new building will be used for decorating and as a decorating warehouse for the new Barbara-Jane ivory porcelain dinner shape. By this plan, the company will divorce its Barbara-Jane shape from other parts of the plant, so far as decorating and warehouse space is concerned.



ITALIAN WARE POPULAR IN U. S.

Italian pottery of the more artistic form is reported to have become generally popular especially thruout the United States. It is said that the Italian potteries are taxed to the utmost to satisfy the demand for highly colored earthenware, for which there is an increasing demand in many countries. In order to make these products the Italian pottery industry

finds it necessary to ship in their raw material, such as china clay, kaolin and coal and, therefore, feels the need for tariff protection on the home market against foreign competition. On account of its artistic beauty, colored and painted majolica is in great demand and much sought by the United States, but since the home market was neglected during the recent war, the Italians have not been able as yet to fill foreign demands.

This industry also manufactures a cheaper earthenware which can be burned with local fuel and when finished can be obtained at a low cost. This product is of good appearance and rings true. So far the capacity of Italian potteries is inadequate to meet the possibilities of development in this trade but expansion is looked for in the near future.



PENCE LEAVES KNOWLES FOR PADUCAH

Forrest K. Pence, former president of the American Ceramic Society, and for the last year or more chief ceramist for the Knowles, Taylor & Knowles Co., at East Liverpool, Ohio, has resigned from that desk to take the presidency and general management of the Paducah (Ky.) Pottery Co., effective at once. Before locating in East Liverpool, Mr. Pence was active in the research department of the American Encaustic Tile Co., with offices at Zanesville, Ohio.

Altho the Paducah Pottery Co., which was formerly engaged in manufacturing stoneware and stoneware specialties has been idle for the last year, the physical condition of the plant is such that it can be placed on a production basis within a fortnight. It has a capacity of six down-draft beehive kilns. The name of the company will later be changed to that of the Paducah Tile & Pottery Co., as the new owners propose to enter the tile field on an extensive scale.

While located in East Liverpool, Mr. Pence has been very active as a member of the Research Committee of the United States Potters' Association, and his contributions to the association have been of the highest value.

In continuing its research department, the Knowles, Taylor & Knowles Co. will have as its chief chemist, R. V. Miller, late of the ceramic department of the Ohio State University, Columbus.



DEMAND FOR AMERICAN WARE INCREASING

While German and English dinnerware manufacturers have been accepting business from American buyers, and promising deliveries, these buyers are rather skeptical as to whether deliveries will be made. Buyers who have recently returned from abroad contend that so far as the manufacturing of pottery is concerned, conditions in Germany are not much better than they are in England. In the latter instance, a strike in the pottery industry is considered very probable, and in the case of Germany, production is not up to normal, which, coupled with the French-Belgian invasion, makes shipping not the easiest thing in the world.

Therefore, there is increasing demand for decorated American dinnerware. Buyers of necessity are compelled to keep up their departments, and knowing the foreign situation as they do, are pleading with the American dinnerware manufacturers for merchandise.



J. J. HEROLD, NOTED POTTER, DIES

John J. Herold, late superintendent of the Ohio Pottery Co., died at his home in Zanesville, Ohio, on Wednesday, April 18. He had been in poor health for a number of years and had not been active in business for several months. Mr. Herold was remarkably active in fine ceramic work and during his life was associated with a number of enterprises in the industry. He was a big factor in introducing the production of chemical porcelain ware in this country, a product which

before 1914 came almost entirely from Germany. He organized the Herold China Co. and this company, now operating as the Coors Porcelain Co., practically enjoys the monopoly of the chemical porcelain industry in this country at the present time.

Mr. Herold was without doubt one of the greatest practical potters of the day and it is to be regretted that he never had the opportunity of working with those who could thoroughly appreciate him to his full value or who could adequately create conditions where he could work to the best of his ability.

RUSSELL SUCCEEDS J. M. MORTON

Harold Russell, formerly assistant superintendent of the Mosaic Tile Co., has succeeded John M. Morton as superintendent of that institution. Mr. Morton resigned April 1 to head his own company known as the Standard Tile Co., the plant of which soon will be under construction. Mr. Russell has been serving as assistant superintendent for the past three years. He assumed his duties April 1.

LEAVES PLANT AFTER 40 YEARS' SERVICE

Henry Witzel, who for the past 40 years has been dutifully connected with the Ionia (Mich.) Pottery Co., has disposed of his holdings in this property. Mr. Witzel wants a rest for, as he states, the only vacations he has taken during his services at the plant were one of ten days spent in Canada and another of four days when he attended an Odd Fellows' convention.

CALLED IN PRICE FIXING CASE

Michael Helfrich, president of the National Sanitary Pottery Co. of Evansville, Ind., and H. Weaver, secretary, went to New York recently to testify at a federal hearing into alleged price fixing by some of the large potteries of the country. Subpoenas were served on the men by J. E. Stickelman, deputy United States marshal. Both took with them considerable data on the industry. They expect the hearing to last for two or three weeks.

SANITARY POTTERS CONVICTED

The indictment of a number of sanitary ware manufacturers in New Jersey recently resulted in the conviction of 20 individuals and 23 corporations on April 17, it is reported. These parties were found guilty by a federal court jury of violating the criminal provisions of the Sherman Anti-Trust Law by conspiring to fix prices and restrict the sale of pottery.

SHOWS HOW "NILOAK" POTTERY IS MADE

A not only interesting but practical demonstration of the making of Niloak pottery was made by C. D. Hyten, manufacturer, at the Ad Carnival given by the Y. W. C. A. Business and Professional Women's Club at the Hotel Marion, Little Rock, Ark., April 13 and 14, it is reported. Mr. Hyten brought with him the necessary materials and equipment to demonstrate the manufacture of his pottery from start to finish.

W. W. KNIGHT STRICKEN BY DEATH

Wesley W. Knight, president of the Sanitary Pottery Co., Ltd., St. Johns, Que., is dead.

STANDARD TILE BUILDING PLANT

The capital stock of the Standard Tile Co. has been increased from \$225,000 to \$300,000, and was liberally sub-

scribed to. The company will erect a plant on a site near Zanesville, Ohio. Officers of the company are John M. Morton, Harry W. Rhead, Walter V. H. Black, H. C. Van Voorhis. The new plant will be entirely modern and very complete.

SLIGHT DECLINE IN N. Y. POTTERY LABOR

A report announces that in 55 industries in New York state, a total of 35,000 employes was added to the payrolls during March, a gain of two per cent. over February. A slight falling off in the pottery industry found compensation in a direct gain in the manufacture of cooking glassware.

ALLIANCE POTTERS USE PARCEL POST

The potteries of Alliance, Ohio, have started to ship their products to all parts of the country thru parcel post, a report states.

ROWE CHINA ACQUIRES CHARTER

Rowe China Co., Wilmington, Del., has filed with the secretary of state a charter with a capital of \$300,000. The company manufactures all kinds of clay wares.

POPE-GOSSER AWARDS CONTRACT

The contract for the construction of the new 70-foot addition to the Pope-Gosser China Co. plant has been awarded and work on it will be started at once, officials of the company announced.

FIND KAOLIN NEAR DECATUR, ILL.

A new discovery of kaolin near Decatur, Ill., was made by the well-known artist, J. Schumacher, who is the author of the book entitled, "New Method of Decorating China." As soon as a desirable location is secured, Decatur is expected to have one of the most interesting china, terra cotta and tile manufacturing companies in the country, it is reported.

SOUTHERN POTTERIES ENJOYS GOOD BUSINESS

The Southern Potteries Co., Nashville, Tenn., enjoyed March as its banner month. \$5,000 worth of the company's product was shipped to various parts of the country. At the annual meeting held recently, the stockholders expressed themselves as well pleased with the management of business affairs by the plant executives.

SUES RAILROAD FOR REPARATIONS

The Louisville (Ky.) Pottery Co. has filed suit and was given a hearing recently before John McCord, of the Interstate Commerce Commission, in the Federal building, Louisville, the suit being against James C. Davis, Director General of Railroads, for reparations on excessive charges on shipments of clay from the company's clay mines at Huntingburg, Ind., to the Louisville pottery plant.

A SALES GETTING ADVERTISEMENT

Proud of their ware and the design of the architect, the Denver (Colo.) Terra Cotta Co. took a picture of the Brown Building and says:

"This attractive commercial building is executed in terra cotta of our manufacture. The architect selected a buff unglazed finish, relieved by the employment of olive green and blue.

"We can't make all the terra cotta in the world, so we make the best of it."

There is a sales getting slogan if there ever was one!

Management and Superintendence

A NEW WAY TO USE THE SHALE PLANER

Much has been said about the operation of shale planers and their excellent utility for winning shale. The planer, it will be remembered, moves straight into the bank, swings in

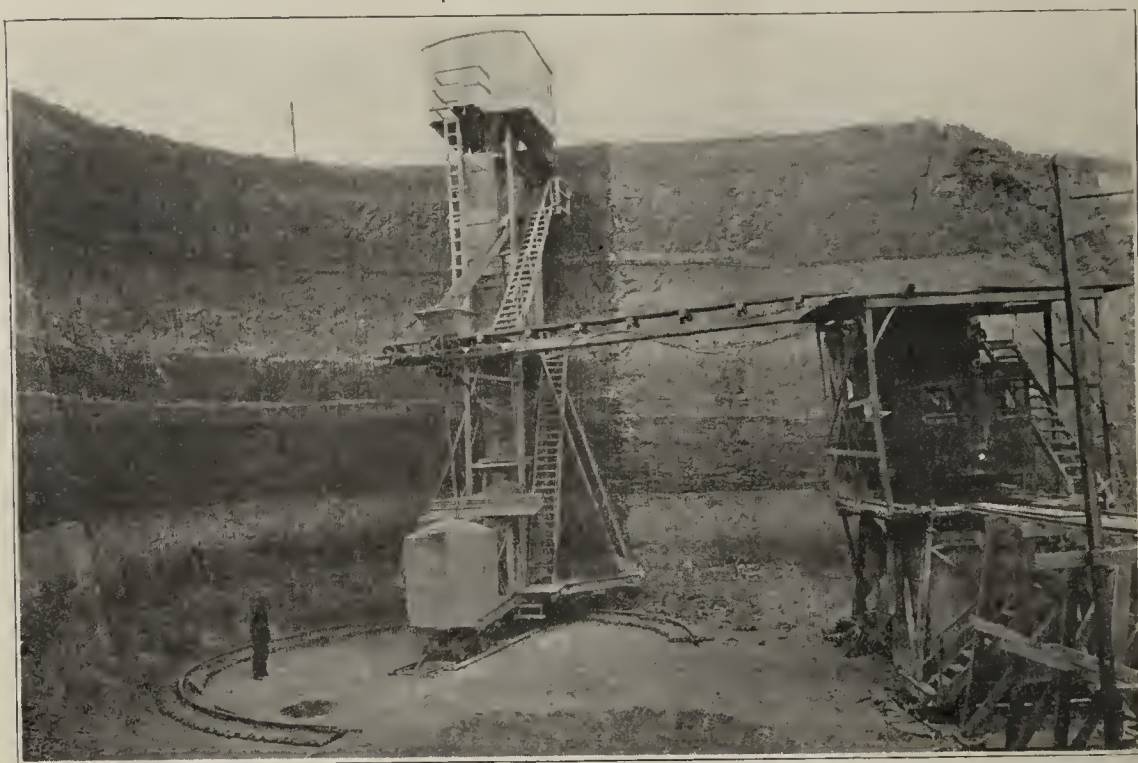
or trestle work, and results in a lot of expense to keep the track clear. By adding the conveyor shown in the photograph this difficulty is overcome altogether.

"On the other hand, when a low face, below 35 feet is worked, an excessive amount of moving of the receiving hopper, serving tracks, and so forth, is necessary. It will be seen from the photograph that all that is necessary with our machine is to pull the pivot truck up four or five feet and block it. We use short sections of track which are thrown in one ahead of another, to do this. The pivot track, which is just under the ballast box, is substantially perpendicular to the conveyor and follows the line AB as marked on the drawing."

To gain the maximum efficiency from the planer the procedure is as follows:

Consulting the sketch, the dotted line EF represents the face of the bank upon completion of a cut. The excavator is now at the point marked A on the line AB, and the loading hopper is at L. The line CD represents the arc in which the

planer moved in cutting out the bank at EF. Now, to make the next cut, which when completed will be along the line

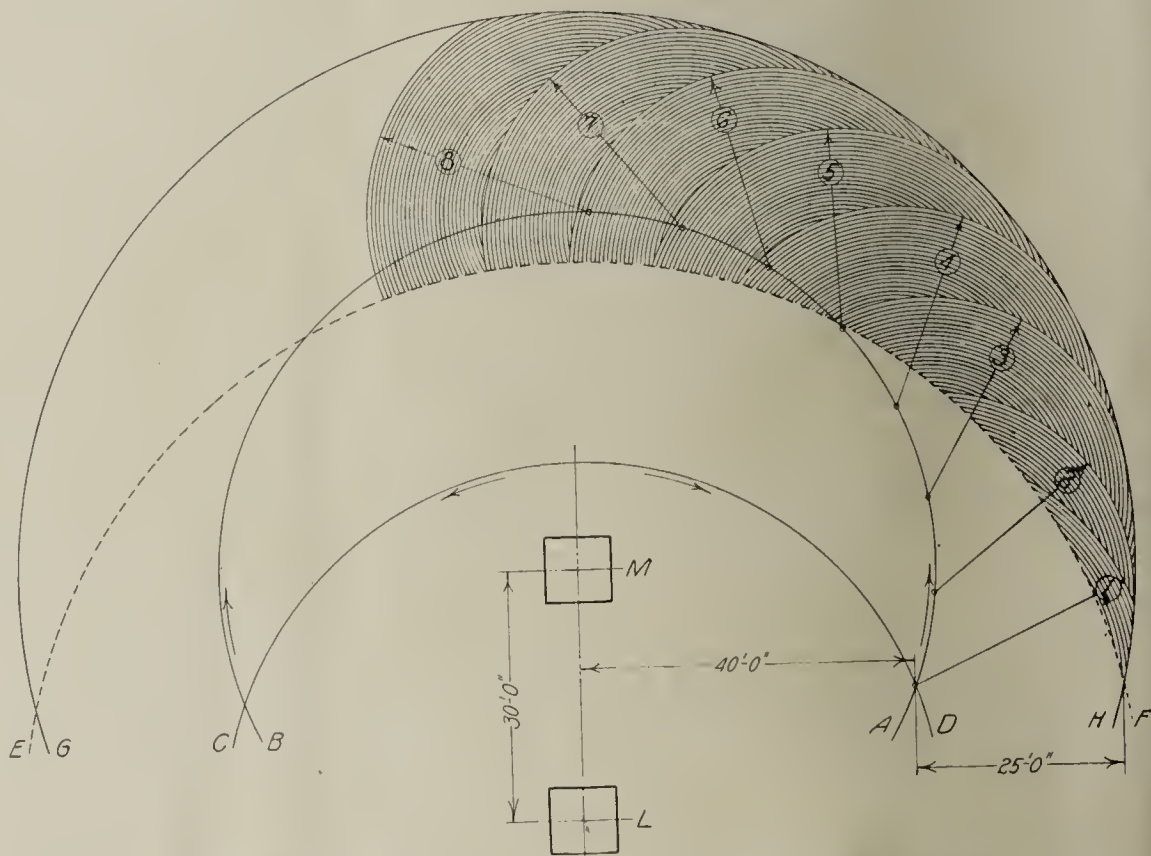


This Photograph Shows the Adel Planer Being Used as Depicted on the Drawing. Note the Circular Walls of the Bank Where the Planer Is Not Cutting.

a semi-circle and delivers the cut material in uniform mixture and small pieces to a hopper behind it from where it is dumped into a car and hauled to the plant.

There has been developed an entirely new method involving the use of a conveyor in connection with the planer which is worthy of description. This method was developed at Adel, Ia., for use with the Adel excavator. By means of the conveyor shown in the photograph, which is set at a distance of 40 feet from the planer it is possible to gain much greater efficiency from the machine. The advantages of working the bank in this way are probably best described in the words of H. R. Straight of the Adel Clay Products Co., who has the following to say:

"When a high face, over 35 feet, is worked the bank left on one side or the other of the track by which the material is hauled away from the machine to the plant, weathers down on to the track

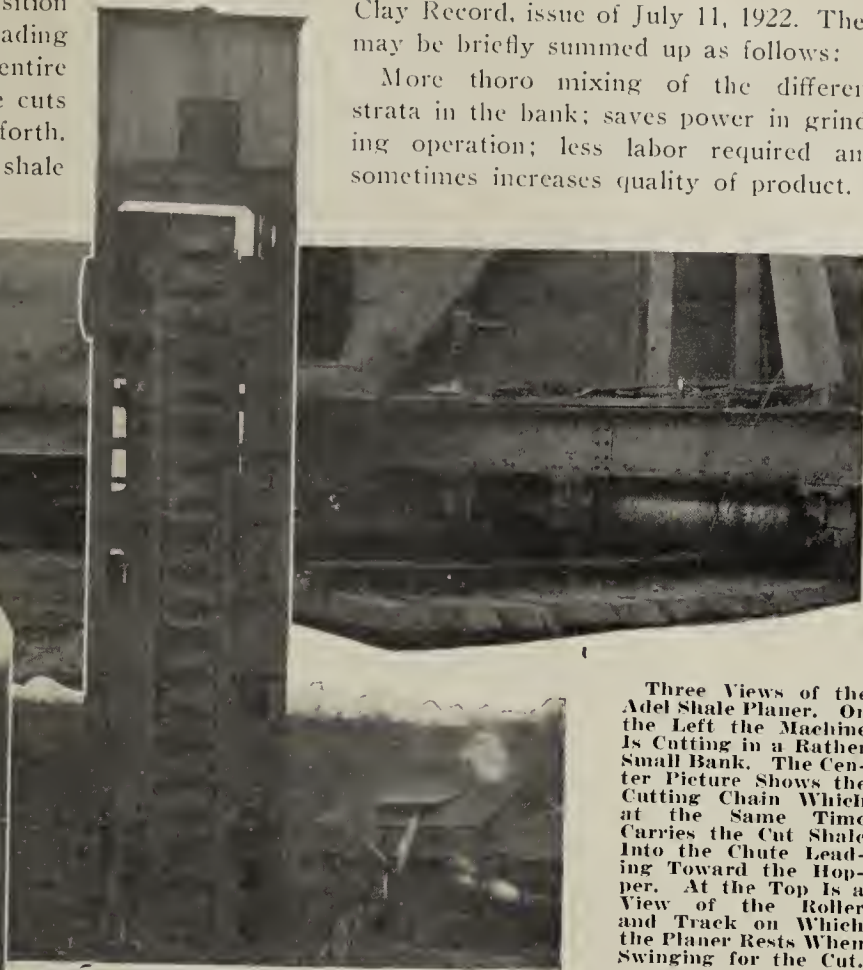


This Drawing Illustrates a New Method of Using a Shale Planer Which Greatly Increases Its Capacity. See Text for Explanation.

GH, it is necessary to move the loading hopper from position L to M, a distance of approximately 30 feet. The loading hopper then forms the central point around which the entire planer moves in the arc indicated by the line AB. The cuts are then made as shown by the positions 1—2—3, and so forth.

The advantages of this method of operating the shale planer are outlined by Mr. Straight as follows:

"1. It keeps a smaller amount of face open for wet, cold, or exceedingly dry weather.



Three Views of the Adel Shale Planer. On the Left the Machine Is Cutting in a Rather Small Bank. The Center Picture Shows the Cutting Chain Which at the Same Time Carries the Cut Shale Into the Chute Leading Toward the Hopper. At the Top Is a View of the Roller and Track on Which the Planer Rests When Swinging for the Cut.

ELECTRIC TRANSFER CAR SAVES LABOR

An electric transfer car, that already has proved its adaptability to the work of transporting the partly finished brick in its plant, over the older method, which requires more men to handle the work, has been installed at the plant of the Superior Brick Co., Cleveland, Ohio. The car is equipped with two transfer bodies, which are capable of conveying 600 brick each at one time from the dryer to two different kilns. The equipment is handling 100,000 brick a day, although the system is still new in operation there, according to J. F. Aten, Jr., member of the firm.

KILN ACCELERATOR SAVES TIME

The Stone Creek (Ohio) Brick Co., a new plant which started operations on July 11, 1922, is shipping at the rate of 1,000,000 red shale face brick per month. This plant has eight 32 foot round down-draft kilns and is modernly equipped with Freese clay machinery, cutter, conveyors, and



General View of Stone Creek (Ohio) Brick Co.'s Plant.

so forth, Stevenson ten-foot dry pan and reciprocating feeder, Chase Foundry & Machine Co. brick cars. The Stone Creek plant hires all American labor and is getting very satisfactory production. It reports 95 per cent. burns in six days' burning time. They operate their own coal mine, employing 15 men working on a 36 inch vein. Thru the use of a kiln accelerator, this company has been able to save from 1½ to two days' burning time on the kilns.

"2. It increases the capacity of the machine over that which can be secured with the same machine going straight into the bank for the tapering out from a full cut to no cut is almost instant on one end of the swing, while on the other it is the same as ordinarily experienced. This raises the efficiency of the Adel excavator working on a 25-foot radius from 94 per cent. to slightly more than 96 per cent. By this efficiency is meant that percentage of the cutting time at which the machine is cutting the full depth or full capacity. It should be clearly brought out that any machine which does not increase the radius of swing from one cut to the next will cut its full efficiency or capacity for one instant only and that is when the cut is directly ahead of the direction in which the machine is going.

"3. It will be noted on the photograph that the face of the bank which is left behind the planer and which in the ordinary plant will be cut over in about 60 days, is left circular so that it does not cave in or weather down easily. The photograph shows how perfectly the old face has stood up.

"4. The depth of the cut in the floor of the pit can be regulated so that within two movements of the loading hopper, the machine can dig itself in easily 15 feet if necessary. In starting in on a new cut this is sometimes quite an advantage."

On the Adel excavator the cutting chain moves upward, instead of downward.

There is a shale planer of the type herein described in use at the plant of the Denison Clay Co., Coffeyville, Kan. This company uses two men to operate the excavator and requires one man to operate the dry pan. Therefore, only three men are needed to get the shale from the bank into the pug-mill.

The general advantages which a shale planer possesses for working a hard shale bank have been described in Brick and

WILL TEST FOR FATIGUE OF STONE

It has long been known that a load much below its apparent breaking strength would cause failure of stone after a long time. The Bureau of Standards is now undertaking a series of tests to determine the extent of this effect and to see how much load can safely be borne by stone for indefinite periods.

Samples of stone will be tested both in straight compression and in bending. Loads will be put on the stone and will be left remaining there. Deflection of the stone will then be measured from time to time.

Marble has the peculiar quality of sagging slowly, even under its own weight. Thus many cases are known in which

marble slabs placed in horizontal position for a hundred years or so have sagged down several inches; and thin tombstones of marble have bent over.

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BRITAINS TO PUSH PAVING BRICK

According to a notice appearing in the British Clayworker, brick manufacturers of England have formed an association to promote the use of brick in road building. Brick for use in road building is a comparatively new thing in England and heretofore this type of pavement has been little used. Membership in the association will be determined by the ability of a manufacturer's product to withstand the tests imposed upon it.



What the Visiting Clay Man Sees in Los Angeles

EVERY YEAR Los Angeles attracts more and more people from the East and the reasons are found in its wonderful climate, beautiful scenery, enterprising populace and the remarkable growth and development of its industries. In the last years building has been going on at such a remarkable pace that clay products manufacturers there have been operating their plants at capacity the year round.

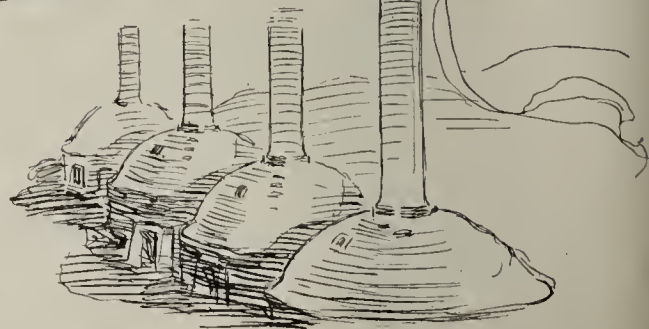
Splendid theatres, hotels, apartments and so forth have sprung up, making Los Angeles a city of which its inhabitants might well be proud. The picture here shows the new Biltmore Hotel which has been completed recently at a cost of \$8,500,000. It is claimed that this is one of the finest and most luxurious hostelrys west of Chicago.

The Biltmore Hotel, here shown, may be termed an "all clay products" building since clay products were used practically wherever possible. The exterior is a beautiful face brick artistically trimmed with terra cotta. The face brick were supplied by the Los Angeles Pressed Brick Co. and the terra cotta by Gladding-McBean & Co., of Lincoln. The Los Angeles Pressed Brick Co. also furnished some of the hollow tile. The balance of this material as well as the common brick was supplied by the Los Angeles Brick Co.

Whiting-Mead & Co. furnished the plumbing fixtures which are for the most part vitreous porcelain. The beautiful floor and wall tile work was done by the western branch of the American Encaustic Tiling Co.



The Clay Materials Used in the Biltmore Hotel Are a Tribute to the Clay Products Industry on the Pacific Coast. Those Who Have Visited the Coast Recently Are Loud in Their Praise of the Progressive Spirit of the California Manufacturers. Valuable Lessons in Production Methods Can Be Learned in Los Angeles. It Is Claimed. That City Is One of the Most Important Clay Products Manufacturing Centers in the United States and Every Variety of Product Is Manufactured There.



After All— RESULTS

Are What You Buy!



The "Results" of Sixty Years Experience building Clay Machinery are back of the "American" Line. You get "Results" from it because we Build "Results" Into it.

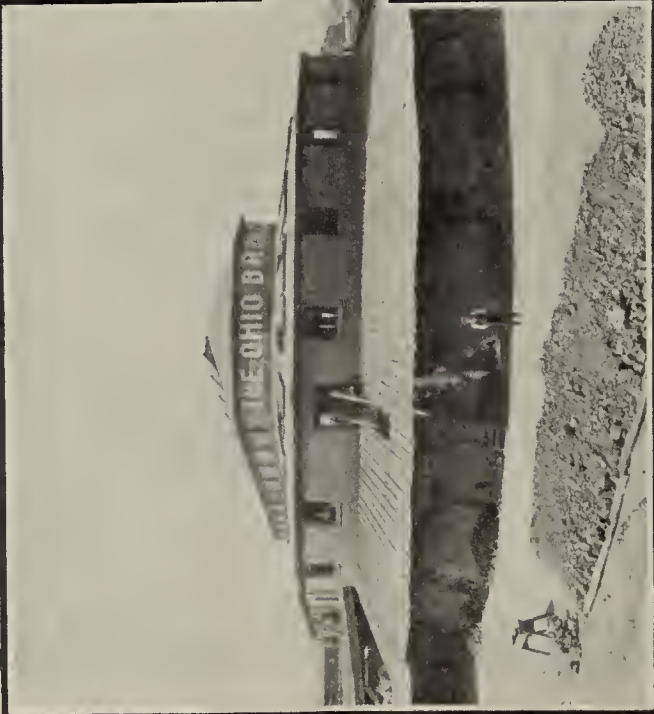
The Hadfield - Penfield Steel Company

Builders of The "American" Line

Bucyrus, Ohio

UNIVERSITY OF ILLINOIS
LIBRARY

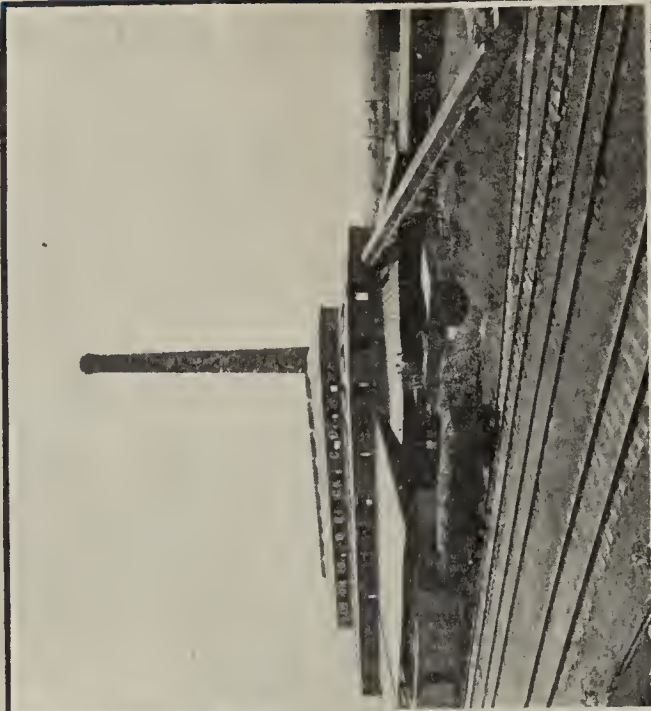
HAIGH KILN IN USE BY OHIO BRICK CO.,
TOLEDO, OHIO, SINCE 1907 BURNING SOFT
MUD BRICK WITH FINE RESULTS



WHY NOT VISIT THE OHIO BRICK CO.,
AND GET FIRST HAND INFORMATION
ON THE HAIGH KILN.



THE HAIGH KILN IS NEVER FOUND AT
AN UNSUCCESSFUL YARD. WHY?-----
BECAUSE IT MAKES A PLANT SUCCESSFUL



NOTE COAL ELEVATOR, A FEATURE
OF THIS INSTALLATION.

HAIGH KILN IN USE IN THIS PLANT CONTINUOUSLY
FOR 16 YEARS. MANY OTHERS HAVE LONGER RECORDS
—ALL SATISFACTORY. HALF THE BURNING COST SAVED

THE HADFIELD-PENFIELD STEEL COMPANY
BUCYRUS, OHIO

Manganese Steel Wearing Parts Save Money



Clay Plant Repairs are saved with "Era" Manganese Steel Scraper and Muller Plates, Pug and Auger Knives, Gears and Pinions and any other parts where there is excessive wear. We have pattern for all standard parts. Demand "Era" brand. Backed by years of tried service. Tough, hard, wear-ever. Saves and Slaves for Clay Workers.



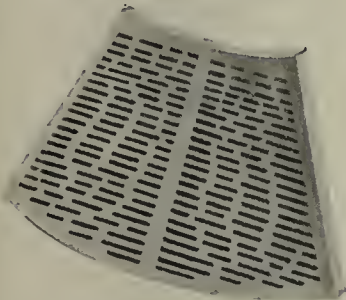
DRIVING PINION



KNIFE



BEVEL PINION



"ERA" brand Manganese can be secured only from The Hadfield-Penfield Steel Co., Bucyrus, Ohio.

THE HADFIELD-PENFIELD STEEL COMPANY
BUCYRUS, OHIO

AMERICAN GASOLINE LOCOMOTIVE

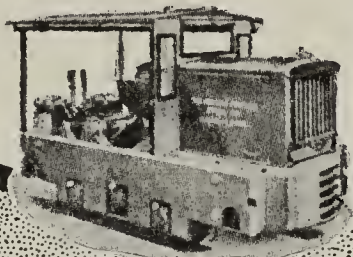
An Ideal Machine to Produce Continuous Haulage at Minimum Cost

If you have haulage work to do, let the Gas-O-Motive do it. The engine is so simple in construction, so ruggedly built, that it can go through the severest service—service that would put other apparatus out of commission—and come out ready for the next job. "Gas-O-Motives" rarely visit the repair shop.

If you have a haulage problem send us your name and address.

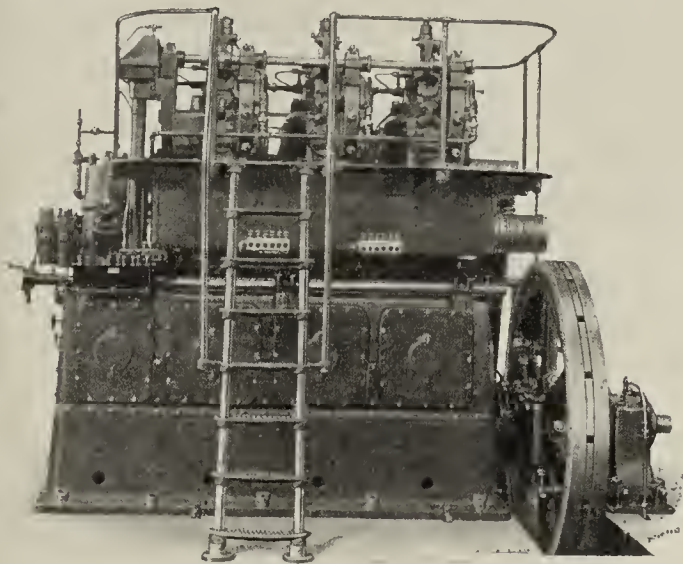
"Over a 2,000 foot grade, ranging from 5 to 7 percent, the American Gasoline Locomotive hauls two cars of 2½ yard capacity each, and does it constantly. It works perfectly." Okmulgee Brick Co., Okmulgee, Okla.

THE HADFIELD-PENFIELD STEEL CO.
BUCYRUS, OHIO



A Big Live Fact

POWER in the average Clay Plant if made by Steam costs you 65 CENTS per thousand brick.

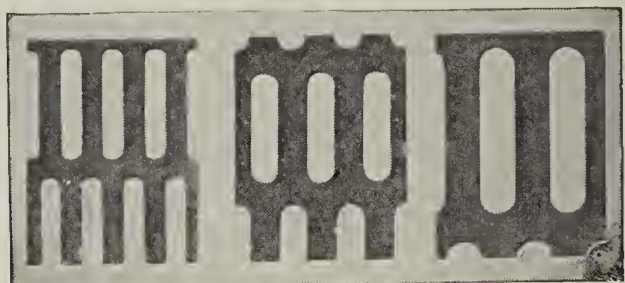
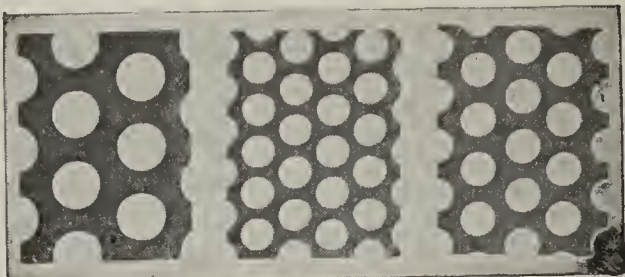


150 HORSE POWER ENGINE

BUT—with a Standard Diesel Engine your power will cost 11 CENTS per thousand brick.

The Hadfield-Penfield Steel Company
BUCYRUS, OHIO

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shapes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

CAUCASIAN OXIDE MANGANESE

Powdered—Granular
For Speckled Effects

PRECIPITATE CARBONATE BARIUM

For Prevention of Scum
Thereby Producing
Deeper and Richer
Color

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.**

New York

Chicago
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New Orleans
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Kansas City
Cleveland
San Francisco

The Letter Box

A Place Wherein Letters
That Have General Interest
Are Published
and Commented Upon

CLAY INDUSTRY IN CENTRAL AMERICA

Brick and Clay Record publishes here an interesting letter received from a subscriber in Guatemala, Central America, describing the country and conditions under which the clay products manufacturers there have to labor. It is interesting to note that the Agricola Central Co. is building practically an entire city with a number of industrial enterprises. Gentlemen:

"I have delayed to comply with my promise to give you a write-up on Guatemala and the probabilities of the clay-working business here in Agricola. Agricola, the name of our new town, is located on F. I. of C. A. R. R., ten miles north of Champoseco, our seaport on the West Coast of Guatemala, and 17 miles south of the city of Ritalhula. The railroad runs thru Guatemala City, 180 miles northwest on to the east seaport at Porto Barriso. The west slope from the mountains to the coast, a distance of 125 miles, has a fall of about ten feet to the mile and is a valley 35 miles wide with volcanic ash deposit 8 inches to 40 inches deep and level sub-strata of light gray soft sandstone 15 feet more or less in thickness. We have plenty of good soft well water at a depth of 40 to 60 feet. Tests on hand made brick of this clay, which burns at, from 1,180 to 2,000 deg. F., have thus far proven very satisfactory.

"Brick, just out of the mold, weigh six pounds, dried 4 1/4 pounds. They shrink a fraction less than one-eighth inch and dry quite safely on pallets in the shade, but laid out in the sun they crack badly. The hot tropical sun and wind is one of the most severe tests to which any clay could be put. However, there are some that stand the test. Our brick and tile machine has not arrived as yet and in the meantime I have built an old wooden pug-mill for experimental purposes.

"The Agricola Central Co. has 12,000 acres of valley land and is planting cocoanuts, pine apples, Indian corn, bananas, and garden truck. There are to be constructed as soon as is possible, 50 brick dwellings for employes, one large clubhouse with tile roofs and floors. The company has a large Fowler plow, part of which is on the ground and part of it still at port, which will be used to plow and clear out this jungle. They expect to build an oil mill, soap factory, clay-working factory, ice plant, bakery, and a factory to manufacture burlap, coffee and sugar, cotton goods, and hemp out of Rama and New Zealand flax.

"The climate is ideal. This is our summer time and dry season. In the rainy season, May to October, the sun is very hot. The humidity is great but the mercury registers around 90 degrees F. and a breeze blows almost continually. Nights are very cool, sometimes so cold that one or two blankets are necessary before morning.

"Now a little history of myself.

"I began work in a pottery at Anna, Ill., in 1860, when ten years old. I served apprenticeship under Moses and Noah Aliff, Mound City, Ill., in 1866 and 1867. I went to Texas under contract with W. C. Knox, Olith, in 1870. In 1889, I went to West Washington under contract to work for the Fox Island Brick & Tile Co., and then to Sidney Post, Orchard Bay, in 1892. Thence to Victoria, B. C., to test out their clay for stoneware. From there to Little Falls, Wash., to superintend tile and terra cotta department. Then, to Athens, Tex., to turn out stoneware. From there I went to Medicine Hat, Alberta. At all these places I experimented as a pioneer in a sense, and now I am pioneering in Agricola, Guatemala.

"This is an oxcart country and everything moves at the oxcart gait. Hence, we get on slowly and get nowhere. It takes \$1.50 to mail a letter to U. S. A. postal union. No registered mail comes farther than Guatemala City. One has to go or send an agent to get it. It takes one month to get returns on letters from U. S. A. and hence, I hope some of my clayworking correspondents will please excuse delays."

Very truly yours,
JOHN L. STONE.

Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

MORE DATA ON MAKING MUFFLES

1,063. Ontario.—We would appreciate any information you can give us regarding the proper method of molding small fire clay muffles.

We might add for your information that we are primarily manufacturers of furnaces for heat treating steel, and purchase the greater part of our fire brick and tile from large manufacturers. However, we also find it to our advantage, when special shapes are needed in small quantities or on short notice, to mold them ourselves and fire them in a small gas and oil fired kiln. Just now we are interested in some small muffles for a new furnace; hence this letter.

Paul E. Cox, director of the Department of Ceramic Engineering of Iowa State College has sent in the following additional information to question 1,063 which was printed in Brick and Clay Record of February 20 and is reprinted here.

"It seems to me that you failed entirely in answering question 1,063 and merely told the inquirer how to make a slab or a brick. Possibly your answer takes care of this case but were I reading this question at my desk I would interpret it as applying to the small muffle made all in one piece and this would demand a core.

"If I am correct I would refer the inquirer to the casting process developed in the Bureau of Standards as described in the Journal of the American Ceramic Society August, 1919, and again to the Journal of July, 1920. I believe the inquirer could readily substitute fire brick grog for the porcelain grog suggested in these papers. I think there is a paper ahead of these on the same topic, but these two will be all that any capable man needs.

"If the inquirer cares to push this further the Universal Sanitary Manufacturing Co., of Newcastle, Penn., will furnish full details and recipes under license for mixtures and processes.

"There is also the process used in Europe for such forms, descriptions of which can be had from Bourry's book, unless my memory fails me, and certainly from other books translated from the French and easily obtained. This process is one of wooden molds and cores, making the work elementary for the workmen, and making possible the use of as much as 50 per cent. grog, as will the casting process as well.

"And there is of course the process used by the sagger makers in making hand made saggars."

* * *

DENISON ENLARGING SCOPE

Plans for extending its operations in the Middle West territory are announced this week by the Denison Interlocking Tile Corporation, Cleveland, Ohio. New quarters for the Detroit office have been established in the McKerchey Building, that city, where operations will be under the joint management of James J. Sheehan and Bert D. Delmege. Mr. Delmege formerly was connected with the Cleveland office. Guyon Zimmerman, formerly with Cleveland industrial interests, joins Denison as manager of sales in Northern Ohio.

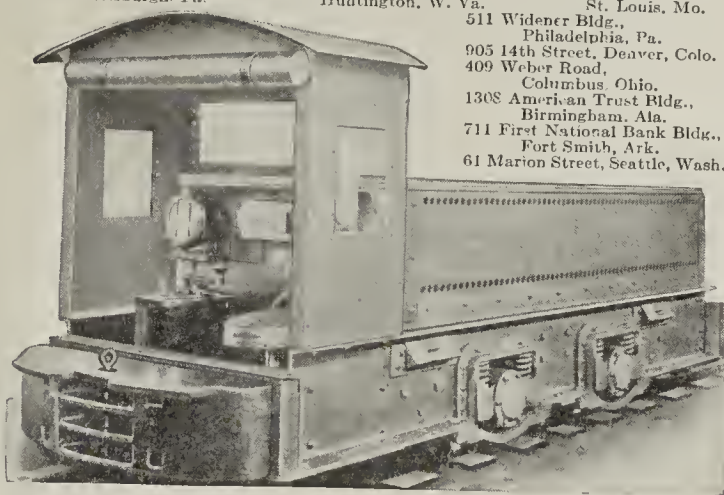
THE IRONTON STORAGE BATTERY LOCOMOTIVE

West Virginia Says 80%

In West Virginia, 80% of all storage battery locomotives in use today are Irontons! This must be conclusive proof that the Ironton Storage Battery Locomotive gives more efficient, more economical hauling power. This must be proof that your money is invested most advantageously in an Ironton Locomotive. Quality—service—satisfaction—why not for you, too?

The Ironton Engine Company, Ironton, Ohio

Branch Offices:
 561-B Union Arcade Bldg., Pittsburgh, Pa. 816 Robson Prichard Bldg., Huntington, W. Va. 1618 Arcade Bldg., St. Louis, Mo.
 511 Widener Bldg., Philadelphia, Pa. 905 14th Street, Denver, Colo. 409 Weber Road, Columbus, Ohio.
 1308 American Trust Bldg., Birmingham, Ala. 711 First National Bank Bldg., Fort Smith, Ark. 61 Marion Street, Seattle, Wash.



Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

UNIVERSITY OF ILLINOIS

PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO



How Strong Is Your Back?

Suppose you had to unload a car or two of coal by the hand shoveling method? "Ouch! Oh, my back!" We venture to remark that your language would probably excel your back in strength. And it is all unnecessary—all too expensive—when you can do it so easily, so efficiently with a

J E F R O B **Portable Car Unloader**

It will load directly into a motor truck or wagon, filling the largest conveyance in a few minutes or it can be extended to serve a storage pile by the use of a separate portable conveyor as shown above.

The Jefrob Portable Car Unloader can be operated either above or below the rails. It will handle 30 or more tons per hour which means greatly reduced handling costs and elimination of demurrage charges. Thus it pays for itself over and over again.

Want the Facts?

They are yours for the asking. Remember that the Jefrob Portable Car Unloader does not cost a lot of money to buy but it saves a lot of money when used. Think it over. Then write for the details.



Robbins Machinery & Supply Co.
444 W. Grand Ave. Chicago, U. S. A.
"Machinery for Moving Merchandise"

Drawn from the Kilns

Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing

CRAMER MAY GET IN GAME AGAIN

According to advices received in Louisville, Harry C. Cramer, of Lexington, Ky., formerly head of the Lexington Brick Co., is planning to re-enter the brick business.

DEATH TAKES F. W. FOGARTY

Fred W. Fogarty, secretary and treasurer of the Crouse Clay Products Co., died April 18 at Akron, Ohio. He died at the age of 42 years and leaves a wife, three daughters, two brothers and a sister.

MR. AND MRS. HYMAN VISIT PORTLAND

Mr. and Mrs. D. M. Hyman of New York City, prominent stockholders of the Denny-Renton Co., came clear across the continent to see the western country, its great building activities, to enjoy the pungent air and real western salt water hospitality. They were piloted thru the big crowds and maze of exhibits at the Portland Own Your Own Home show by E. J. Mathews, president of the Denny-Renton company.

JULIUS S. WALSH STRICKEN BY DEATH

Julius S. Walsh of the Walsh Fire Clay Products Co., St. Louis, Mo., died at his home in St. Louis recently. He had reached the ripe old age of 80 years. His passing is hailed with much regret by an industry which he has benefited immensely thru his association and work. Mr. Walsh was very active in business in St. Louis and the history of his life is one continuous round of activity and progress. At his death he was president of the Mississippi Glass Co. and the Walsh Fire Clay Products Co.

GEORGE O. BERRY DIES

The death of George O. Berry occurred in April at his home in Columbus, Ga., and the brick manufacturing industry in Georgia loses, as a result, one of the pioneers of the industry, a man believed to be the oldest brick manufacturer in the state at the time of his death. Mr. Berry, at his death, was the president of the Berry Brick Co., of Columbus, a concern he organized many years ago, and of which he has remained in active charge ever since. He was also unusually active in Georgia and the Southeast as a member of the National Brick Manufacturers' Association.

KING TUT IMMORTALIZED IN BRICK

Old King Tut has stepped down thru the centuries into the brick industry, the Birmingham (Ala.) Clay Products Co., according to a recent announcement of John W. Sibley, sales manager, having lately started production of a new brick under the trade name of "Tut-Tex Matts."

REFRATORIES PLANT TO BE BUILT

The Anniston (Ala.) Refractories Co. has started construction of a six-kiln fire brick plant at Pell City, Ala., according to a recent announcement by H. S. Teal, president of the company, and expects to have the new plant finished and ready to operate this spring. In addition to this the company also is adding extra kilns to its plant at Oxford, Ala., the enlargement being made necessary, Mr. Teal states, due to the unusually large demand for brick which manufacturers are experiencing this spring over the southeastern territory. This company's main product is fire brick for use in furnaces, and

they also are large producers of high grade clay for commercial use. They have recently acquired extensive clay deposits at Pell City where the six-kilu plant is being established.

HOOD ADDS ROOFING TILE DEPARTMENT

The B. Mifflin Hood Co., of Atlanta, brick and tile manufacturers with extensive plant properties over the South, and building material dealers, advise Brick and Clay Record they have recently added a roofing tile department to the business, handling a full and complete line of principal roofing tiles. Included are Spanish S and interlocking tile, and mission and flat shingle tile, the latter two made by the company at its Melville, Tenn., plant. This plant lately has increased capacity and is now operating full force, producing about 100 squares daily. A. S. Lewis, who has been connected with the Hood company for some years, has been named manager of the new department.

Acting as the southern agents for the Mid-Continent Clay Co., of Peru, Kans., the B. Mifflin Hood Co. has just received what is believed to be one of the largest single orders for roofing tile on the market in the country, amounting to 17 carloads, it is said. The order is from the Louisiana University, at Baton Rouge, La., and the tile is to be used in the new buildings that the university is constructing this year. The Peru company will furnish their "Midco" Peruvian tapered mission tile for the work in various colors.

FORMING NEW CALIFORNIA COMPANY

At Sisson, Cal., F. J. Mackey is organizing a company for the manufacture of tile, brick, and pipe, it is reported.

INCREASES CAPITAL TO \$2,000,000

The Pacific Clay Products, Inc., Los Angeles, Cal., has increased its capital to \$2,000,000. The stock shall be divided into 20,000 shares at \$100 each; subscribed, \$700.

FRISCO COMPANY MAY BUILD PLANT

The McClenahan Products Co., of San Francisco, Cal., is planning to locate a new factory for the manufacture of clay tile, brick, and all kinds of clay products. The objective point in mind is East San Mateo.

GENERAL CLAY CO. TO BUILD PLANT

The General Clay Co., San Francisco, Cal., recently organized with a capital of \$500,000, has plans in progress for the operation of a plant in that section, it is stated, for the manufacture of a line of burned clay products. The new company is headed by C. B. Stevens, William Hoffman and J. J. Bush, all of San Francisco.

ATLANTA HOME SHOW SUCCESSFUL

The annual "Own-Your-Home" Exposition held in Atlanta, Ga., April 9 to 14, was one of the most successful events of its kind ever held in the Southeast, in the opinion of building material dealers and brick manufacturers and dealers of the city who participated. The brick manufacturers and dealers cooperated in a unique and interesting display of an educational nature, showing the stability of brick for home building, its beauty and comparative low cost as compared with lumber or other materials.

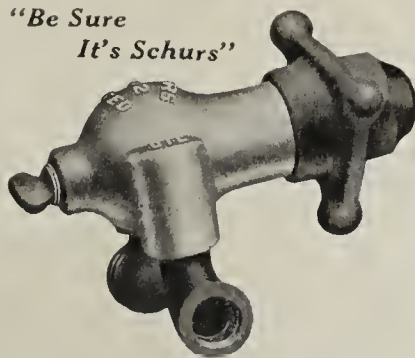
O. ANDERSON BUYS WASHINGTON PLANT

Encouraged by orders ahead, Oscar Anderson, of Standpoint, Ida., has purchased the machinery of the Star Brick & Tile Co., of Mt. Vernon, Wash. The machinery includes equipment for making drainage tile, hollow building tile and brick.

L. E. RODGERS MOVES TO OTTAWA

The L. E. Rodgers Engineering Co., a very well-known firm of drying experts in the clay industry, has moved its

"Be Sure
It's Schurs"



OUR SALES of SCHURS

KILN BURNERS for OIL or GAS

in the United States and Foreign Countries

HAVE PASSED the 70,000 MARK

THEY are in use by more than 90% of the Clay Burning Plants on the Pacific Coast—due to their *super-economy, ease of control, perfect burn and efficiency*. These facts justify your investigation. They *must* be right!

WRITE TODAY for BRICK BULLETIN No. 11

SCHURS OIL BURNER CO.

Established 1905

5330 Santa Fe Avenue

LOS ANGELES, CALIF., U. S. A.

ROBERTSON-PEASE CO.

CENTURY BUILDING

CLEVELAND, OHIO.

ENGINEERS

We can render you practical aid in the selection and construction of your tunnel kiln and other fire brick structures.

Investigate our new method of periodic kiln insulation. Saves fuel, time of burning, is inexpensive, quickly applied and adds no weight to crown nor alters present construction.

Let us be your Engineers.

ENGINEERS

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CLEVELAND, OHIO.

THERE'S A READY MARKET FOR---

Soft French Gray and Speckled Face Brick.

By the use of

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manufacturers are able not only to produce these popular shades, but many other colors as well.

National Manganese has been the standard for 20 years

NATIONAL PAINT & MANGANESE CO.

P. O. Box 184, LYNCHBURG, VA.

Miners and Grinders for More than a Quarter Century



Write Today For Samples and Prices

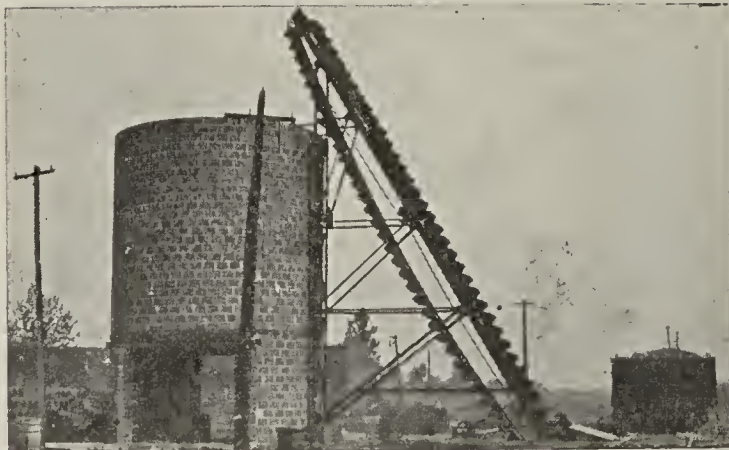
SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



offices to Ottawa, Ill., which city will now be its headquarters. Heretofore, the offices of the L. E. Rodgers Co. have been located at 30 No. La Salle Street, Chicago, and the change to Ottawa is being made in order to get in closer touch with affairs pertaining to the concern's new mineral industries located at Lowell.

CHICAGO PERMITS TOTAL \$2,000,000 DAILY

Climaxing a building boom which itself was unprecedented in Chicago, the city is now spending more than \$2,000,000 a day on new homes, Building Commissioner Bostrom declared yesterday, adding that such a stupendous expenditure will soon result in lower rentals for the less desirable apartments.

In 21 working days of April, 1,197 permits for buildings to cost \$56,865,425 were taken out, Mr. Bostrom said. The total number of permits thus far for 1923 is 2,966 and the estimated cost of the buildings \$76,695,447.

"The stabilization of property by means of the zoning ordinance and the spring weather account for the unprecedented activity," the commissioner said.

INDIANA PLANT MAKING ADDITIONS

The Brooklyn (Ind.) Brick Co. has work in progress on extensions and improvements in its plant for considerable increase in production. A new kiln at the plant will be used for the production of face brick. The manufacture of common brick will be continued as heretofore.

WANT BRICK RATES SUSPENDED

In conjunction with the Terre Haute, Ind., Chamber of Commerce, the Indiana State Chamber of Commerce has filed a petition with the interstate commerce commission asking for a suspension of rates on brick to Arkansas, Missouri and Oklahoma. The carriers have published new rates which are increases over those now in effect in that territory and which the Indiana companies contend are in violation of the order of the commission in the previous brick cases.

NEW RATES PROPOSED FOR INDIANA

The public service commission of Indiana is acquainting brick manufacturers with the substance of Judge T. J. Moll's brick freight decision recently and is requesting opinions from the manufacturers before taking further steps in the case. A. B. Cronk, attorney-examiner for the commission, said railroad attorneys also are examining the court's decision, which set aside brick freight rates ordered into effect by the commission and suggested a new schedule of rates.

When the commission and railroad attorneys reach conclusions, the two will confer to attempt an agreement on an order for the court to issue, Mr. Cronk said.

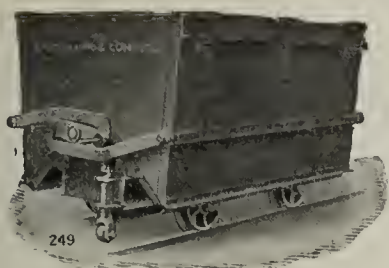
The schedule of rates submitted by Judge Moll follows:

From	Attica	Craw-fordsville	Brazil	Terre Haute
To Goshen	\$1.85	\$1.95	\$2.10	\$2.05
To Laporte	1.80	1.85	1.95	1.95
To So. Bend	1.85	1.85	1.95	1.95
To Mich. City	1.85	1.85	1.95	1.95
To Elkhart	1.90	1.95	2.00	2.05
To Ft. Wayne	1.95	1.95	2.00	2.05
To Mishawaka	1.85	1.85	1.95	1.95
To Peru	1.50	1.60	1.75	1.75
To Wabash	1.60	1.65	1.75	1.75
To Richmond	1.95	1.90	1.90	1.95
To Law'cebg Jct. ...	2.00	1.95	1.95	2.00
To New Albany	2.00	2.00	2.00	2.00
To Evansville	1.85	1.85	1.70	1.70
To Indianapolis	1.45	1.30	1.35	1.40
To Anderson	1.65	1.65	1.65	1.65
To Newcastle	1.80	1.70	1.75	1.80
To Hartford City ...	1.75	1.70	1.80	1.90
To Muncie	1.75	1.60	1.70	1.75
To Columbus	1.85	1.70	1.75	1.80

SHEFFIELD PLANTS CHANGE HANDS

Controlling interest in the Sheffield Brick & Tile Co. and the Sheffield Tile Co., both of Sheffield, Ia., was purchased

EASTON CARS



GABLE BOTTOM CAR

Main Office and Works:
30 Holley St., - Easton, Pa.

New York	Philadelphia	Pittsburgh
St. Louis	Norfolk	Savannah
Birmingham	Salt Lake City	Harrisburg
	San Francisco	

EASTON CAR & CONST'N CO.

2199-E

Made for maximum service
not merely the average



Jenkins Bros.

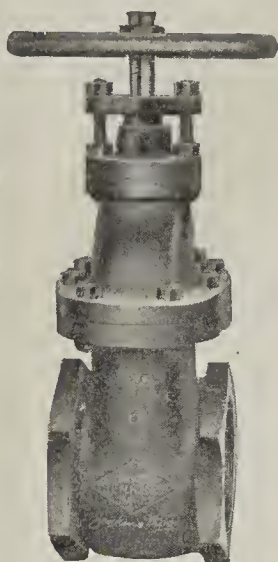


Fig. 325, screwed, Standard
Iron Body Gate Valve.

Good Strong Gate Valves

Jenkins Gate Valves are made in Bronze, Iron, and Steel in Standard, Medium, and Extra Heavy Patterns—each with ample strength to meet the severest service.

Interchangeability of parts is a feature. Jenkins Valves can always be supplied with replacement parts that "fit."

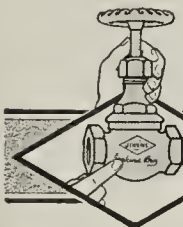
Jenkins Valves are widely used in the brick and clay industry for the economy which is the result of their long serviceability.

At supply houses everywhere

JENKINS BROS.

New York Boston Philadelphia Chicago
Montreal London

FACTORIES: Bridgeport, Conn.
Elizabeth, N. J.; Montreal, Can.



Always marked with the "Diamond"

Jenkins Valves

SINCE 1864

2770-J

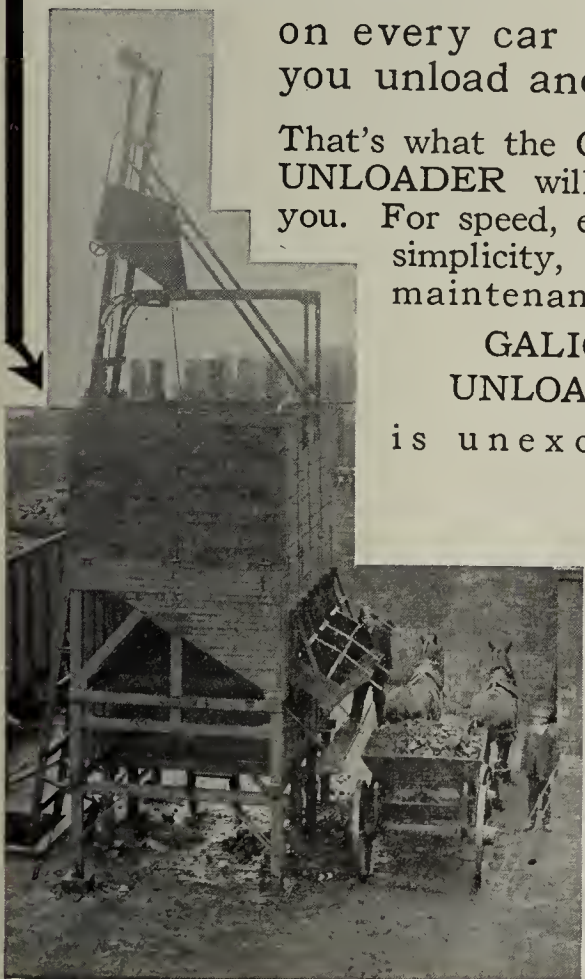
Saves \$10 to \$20

on every car of coal
you unload and store.

That's what the GALION
UNLOADER will do for
you. For speed, economy,
simplicity, and low
maintenance, the

GALION
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is unexcelled.



*Have you
investigated
the Galion
Unloader?
Do so today!*

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GALION
Iron Works
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Galion,
Ohio



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

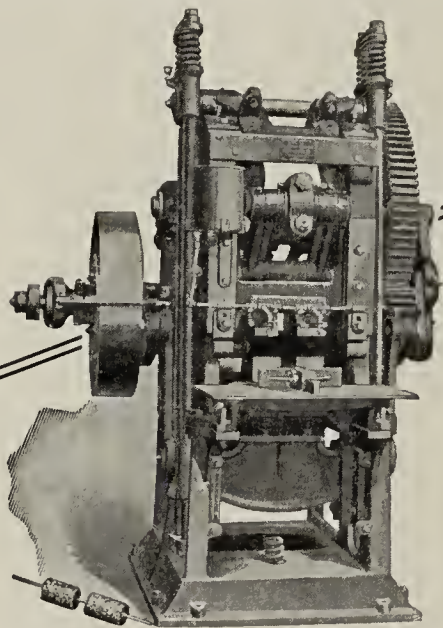
Bullitt Building

Philadelphia, Pa.

Grinding Plant: Plymouth Meeting, Pa.



Page 237



We Repress Gloninger's Face Brick

In his new up-to-date plant, Mr. Gloninger has installed three "Richardson" Represses, for making his "waterproof" face brick. As he had used this make of repress many years, the above fact is sufficient commentary on his experience with them.

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office

918 Behan St., N. S.

PITTSBURGH, PA.

recently by four Iowa men well-known in the clay products industry. The entire holdings of the Carhart family were acquired by this corporation. The four men are B. A. Wallace, president of the Rockford (Ia.) Brick & Tile Co.; Grover H. Galvin, manager of the Rockford Brick & Tile Co.; A. W. Wolfe, Hampton, Ia.; and S. J. Galvin. O. J. Whittemore, a well-known Iowa ceramic man, has also associated himself with the new organization and will be general superintendent of the two plants. The new organization held a meeting April 21 at which A. W. Wolfe was elected president; G. H. Galvin, vice-president; B. A. Wallace, treasurer; S. J. Galvin, secretary. S. J. Galvin will also succeed F. F. Carhart as manager.

KENTUCKY DEMAND IS GOOD

Demand for brick and clay products continues very active in Louisville, Ky., and thruout the state, the trade at the present time being about as active as at any previous time in the history of the city. Taking the state as a whole it is doubtful whether business has ever before been as good, as even the country dealers are busy. Local plants are operating at capacity and could use more capacity if they had it. Demand for building tile, common brick, face brick, sewer pipe and fire brick products is generally active.

NEW COMPANY IN MARYLAND

The Peninsula Brick Co. has been incorporated in Salisbury, Md., a report states, with a capital stock of \$50,000, by Glen Perdue, Harry S. Bradshaw and L. Atwood Bennett.

CLAY COMPANY FORMED IN MICHIGAN

The Veneklasen Clay Products Co. has been incorporated in Hamilton, Mich., with a capital stock of \$30,000, a report states.

MAY BUILD COMMON BRICK PLANT

John C. Mick, of Hibbing, Minn., is considering the organization of a company to build a plant for manufacturing common brick. He reports a good clay deposit, plenty of available fuel, transportation, and a demand for products with very little competition.

NICHOLSONS PLAN TO OPEN PLANT

Nicholson Brothers of Kansas City, Mo., who recently purchased the South Zanesville (Ohio) Brick Co.'s plant, were in that city recently on an inspection trip. It is said they are contemplating opening their plant within a short time.

TO BUILD PLANT IN MEXICO

Dr. H. P. Gregory of Mexico, Mo., has announced that he will establish a brick plant for manufacturing building brick. He is now purchasing the machinery necessary to get the plant in operation. The clay he will use is on his premises in large quantities. Some years ago Mr. Ketter operated a brick plant at this same location and for years supplied the local demand and that of a number of other cities in other sections of Missouri.

TAKE MOVIES OF LACLEDE-CHRISTY

The Laclede-Christy Clay Products Co., St. Louis, Mo., is having motion pictures taken of its large plant to be used by the Bureau of Foreign and Domestic Commerce in exploiting American industries thruout the world, including the Rio de Janeiro, Brazil, World's Fair. The film will cost \$10,000 to produce and the only advertising which Laclede-Christy will receive is in a brief title which will read: "Produced by the Bureau of Foreign and Domestic Commerce with the cooperation of the Laclede-Christy Clay Products Co., St. Louis, Mo." The clay products company defrays all expenses.

"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of the Columbia Brick Works, Portland, Oregon, in regard to their

MARION "RUST SPECIAL" Feeder and Mixer

Read his letter:

"We have been using the Rust Feeder for some time. We find that it gives us a better mixture of clay and a more uniform feed into the crusher, and has proved entirely satisfactory for our requirements."

Write for catalog describing the full line of MARION Clay Plant Equipment. No obligation to buy, but money in your pocket if you do.

Marion Machine Foundry & Supply Co.

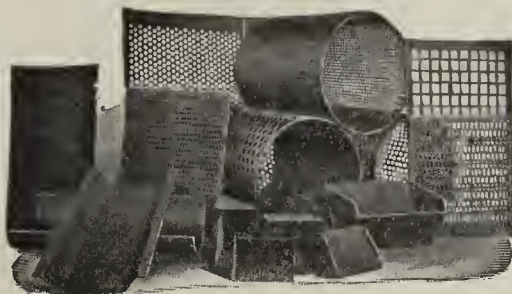
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ELEVATOR BUCKETS
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GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
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CARBONDALE, PA.

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and Track Equipment, you don't need to specify they must be "free from" this, that, or the other thing — because everything that Foster sells is guaranteed as to quality.

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1 Ton
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Thousand

New and Re-laying Rails,
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ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

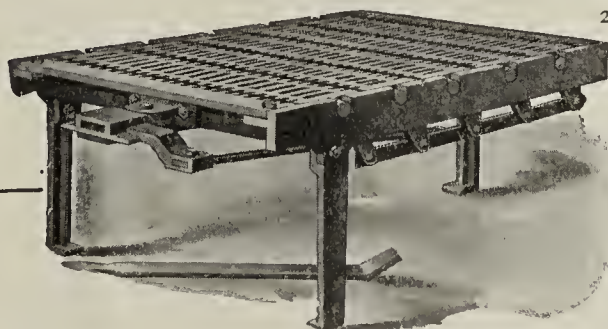
Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It wont cost you to get complete information today and it may mean profit for you. It has to many others.

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JUNE 21st, 1910

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Genuine Balata Belting

When you see the name Veelos on a Belt you know that it is made of the best materials and faultless workmanship.

Veelos Genuine Balata Belting is widely used in Brick Plants and has won a host of friends. It stands up beautifully under the hard, exacting demands put upon it in these plants. It is especially designed for just that sort of hard, rough, dirty work.

The Standard Belt of the World

MANHEIM MANUFACTURING & BELTING CO.
MANHEIM, PA.

**IN EVERY
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of
CLAY
PRODUCTS
MANUFACTURE
STEVENSON'S
EQUIPMENT
CUTS THE
COSTS**

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Tile Presses
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Bucket
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Gravity
Elevators
Brick Barrows
Tile Barrows
Sewer-Pipe
Barrows
Gigs,
Etc.

STEVENSON

SUNDERLAND EXHIBIT FEATURES BRICK

One of the most interesting exhibits of the third annual complete Building Show held in Omaha, Neb., at the Municipal Auditorium was that of the Sunderland Bros. Co., one of the oldest building supply firms of the Middle West. The date of the show was the week of April 2.

Altho this firm participated in the other two building shows, the results obtained from this exhibition far exceeded



Exhibit of Sunderland Bros. at Omaha, Neb., Building Show.

those of the previous shows, according to J. T. Baker, manager of the Sunderland booth and brick department of that establishment.

"During the week of this show we have sold more than a hundred orders," Mr. Baker declared. "The people of Omaha are preparing to launch a big building program for the year. From the large number of orders and inquiries we have received, it is evident that brick will be used as much or more this year than has ever been the case."

CUMMINS INCREASES CAPITAL

The Cummins Brick & Tile Co., Syracuse, N. Y., has arranged for an increase in capital from \$5,000 to \$30,000, for general expansion.

BUILDING PLANT AT BELMONT, N. C.

According to a recent announcement by J. G. Gullick, of Chapel Hill, N. C., president of the Continental Brick & Tile Co., formed at Belmont, N. C., in February with \$50,000 capital, the company now has under construction at Belmont a plant with a daily capacity of between 35,000 and 40,000 common and face brick, and will shortly start operations. It is planned, Mr. Gullick further advises, to enlarge the plant early next year.

NORTH DAKOTA COMPANY FORMED

The Hebron Brick Operating Co. has been incorporated in Fargo, N. D., it is reported, with a capital of \$100,000, to manufacture brick, by E. W. Mueller and M. A. Nashold, both of Jamestown.

GOES TO BAT FOR OHIO BRICK MEN

J. M. Adams, general manager of the Ironclay Brick Co., of Columbus, Ohio, has taken up the cudgel for brick manufacturers and especially face brick manufacturers against published statements that there have been marked advances in the price of face brick together with other building materials. In an article recently put on the front page of a local paper a scarehead contained the statement that building materials had advanced 25 cents over the prices of last year. The statement was made that face brick had advanced from \$30 to \$45. In a letter to the public Mr. Adams corrected this misstatement showing that only in a few cases have any advances been made in face brick in the past year.



Heat Controlled *means* Money Saved

KILN temperatures that rise too fast or too slow or do not reach the proper degree mean waste of time, fuel, and labor, as well as a waste of ware.

BRISTOL'S PYROMETERS

enable your fireman to control heat temperatures up to 3000° F. at all times.

They accurately indicate and record, and are absolutely reliable.

Ask for our 68-page catalog AE-1401.

—THE BRISTOL COMPANY—

WATERBURY, CONNECTICUT

BRISTOL'S

INDICATING

RECORDING

PYROMETERS

THE MINTER SYSTEM

—200 Lbs. Coal per Ton of Ware—

WE BUILD COMPLETE PLANTS or ANY PART

Nine of our Kilns will produce as much as 15 Kilns burned periodically — any product — any fuel. Saving first cost of six Kilns.

Ten of Our Recirculation Drier Tunnels will dry as much as fifteen old line tunnels. All ware dried evenly without strains. No loss, wrecks or other delays. Saving first cost of 6 tunnels and equipment.

Kilns and Drier can be adjusted to the highest speed that any material will stand. What could do more?

DON'T BUILD BEFORE YOU KNOW

The Minter System Plants are Producing the Cheapest Building Material made in America today.

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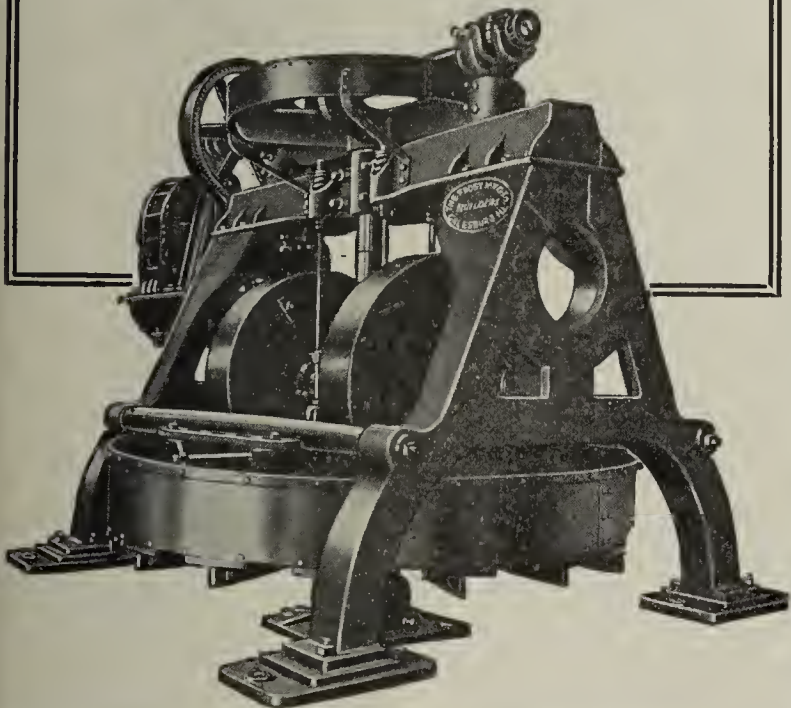
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Columbus, Georgia

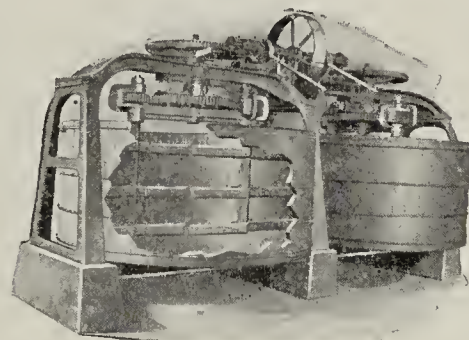
BETTER QUALITY WARE

That is the result when Frost Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE



Five Tons of Material Blunged in Less Than One Hour—

This is the guaranteed performance
of this remarkable machine—

THE MUELLER BLUNGER

Scientifically constructed, improved planetary and unique paddle movements, ball-bearings at all moving parts, small amount of power required—these are just a few of the many features of this dependable machine.

Send for Catalog

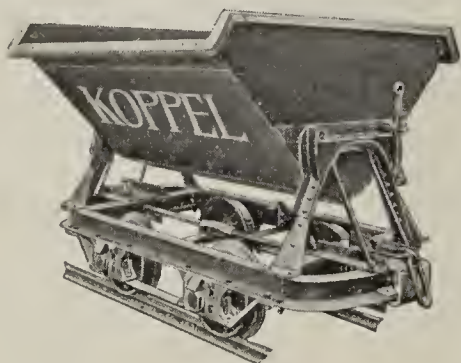
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TRENTON

NEW JERSEY



"IDEAL" CRADLE DUMP CARS



This car is indispensable for handling sand and clay—a general, all-round service car.

We specialize in the manufacture of Portable Track, Switches, Frogs, Turntables, etc.

Write for our Bulletins

KOPPEL INDUSTRIAL CAR & EQUIPMENT CO.
Koppel, Pa.

Sales Offices: New York, Pittsburgh, Chicago, Philadelphia,
Detroit, Kansas City, San Francisco

No. 4 Burner



FOERST Fuel Oil Burners Give—

Economy in Fuel—because they develop full efficiency of the oil.

Economy in Labor—because they eliminate back breaking and vitality-sapping work of firing and clinkering with coal.

Economy in Quality of Results—because color of ware is the same top and bottom. No sorting is necessary.

Write for catalog and information

JOHN FOERST & SONS, Bayonne, New Jersey

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FOERST
FUEL OIL BURNERS

MATHEWS WILL BUILD NEW PLANT

W. T. Mathews, formerly general manager of sales of the Claycraft Brick Co., of Columbus, Ohio, who acquired by purchase a controlling interest in the plant of the Columbus Brick & Terra Cotta Co., at Union Furnace, as announced in previous issues of Brick and Clay Record, has put a force of mechanics at work repairing the plant. Mr. Mathews who is treasurer and general manager of the company since its reorganization some time ago, reports progress being made in this work and that operations will start by May 15 at the very latest.

The property of the Columbus Brick & Terra Cotta Co. consists of 230 acres with ten oil wells and 50 houses at Union Furnace. It was operated up to about six years ago when a receiver was named and operations ceased. At that time the plant was controlled by J. R. Kilbourne of Columbus, and was held by the Kilbourne interests when Mr. Mathews resigned from the Claycraft Brick Co. to take over the property. The plant, because of disuse, became in need of repairs and some portions are being completely rebuilt.

The first repairs will be the building of a new stiff mud face brick plant which will have a capacity of 30,000 daily.



W. T. MATHEWS

Later on it is planned to rebuild the dry pressed brick plant when the output will be more than trebled. The houses have been kept in repair because they have been occupied continuously.

Recently papers have been filed with the secretary of state increasing the capital of the Columbus Brick & Terra Cotta Co. from \$165,000 to \$530,000. Of the new issue of stock \$280,000 is preferred and \$250,000 is common. Good progress is being made in disposing of the surplus stock and money for the repairs is forthcoming.

It is also planned to erect a new fire proofing plant at a later date. The clay deposits on the property are quite valuable and all kinds of clay products can be manufactured. For the time being buff and gray face brick will be manufactured exclusively.

Miss Hoeflinger, who was associated with Mr. Mathews while he was with the Claycraft Co., goes with him in his new venture.

In tearing down the old kilns for rebuilding a total of 5,000,000 second-hand brick have been obtained and many have been disposed of.



No. 300. \$7.80 per doz. \$90 per Gross Pair

A Year of Labor Shortage

Hold on to your men. Jobs are going to be plentiful. Men like to work for concerns who look after their comfort, safety and welfare.

Give your men hand protection. Furnish them with Tuf-Tanned Kant-Rip Mittens or Hand Pads. Send for a trial dozen for either or both kinds. Try out a pair of each, if you are not satisfied return the remaining pairs to us without charge.

**DES MOINES GLOVE
& MANUFACTURING CO.**
DES MOINES, IOWA

FREE

To any manufacturer whose men have not been using Des Moines Hand Pads who will clip out the Hand Pad shown below and mail it to us with his letter-head, we will send FREE a pair of Des Moines Pads.

No. 305
\$4.25 per Doz.
\$48 per Gross Pair



OSGOOD-73 3½ yd. in Sewer Tile Clay Pit.

Uninterrupted Production

THE goal of every plant operator is to keep production moving. The Shale or Clay plant operator who uses OSGOOD Steam Shovels is well on the way to uninterrupted production. OSGOOD Steam Shovels are dependable—work day after day keeping up the same large output. Investigate the OSGOOD. Write for descriptive Bulletin. It will interest you. ¾ and 1 yd. Revolving and 1½ to 6 yd. Railroad types.

The OSGOOD Company
Marion, Ohio, U. S. A.



Russell Continuous Railroad Tunnel Kilns

Are suited for heavy clay ware.

Clay products manufacturers are installing them for that very purpose.

One of the most recent installations is that of the Gladding-McBean & Co., Lincoln, California.

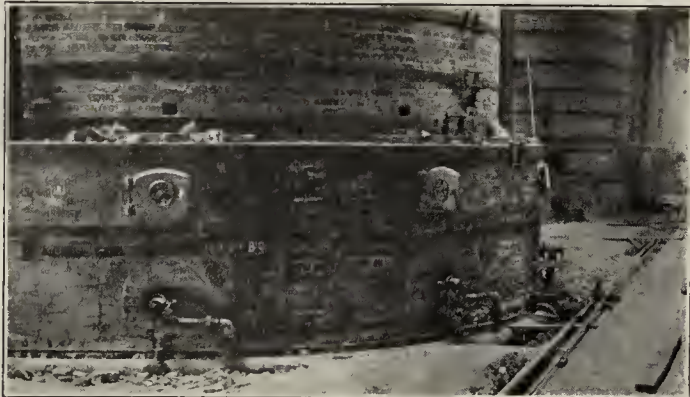
Let our engineers prepare an estimate for your plant.

Russell Engineering Company
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TUNNEL KILNS

Oil Fired Kilns



Should be of vital interest to every Pottery and Tile Works because—

Oil gives a shorter firing time

A higher percentage of first grade ware

A greater product value per kiln.

Ask for information regarding
T-J System of Burning Oil.

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Established 1898

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In Making Your Plans for Plant Betterment—

take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

Send for list of satisfied users.

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KANSAS CITY: W. T. OSBORN

YOUR WARE CAN BE BURNED— CHEAPER and BETTER by the use of oil

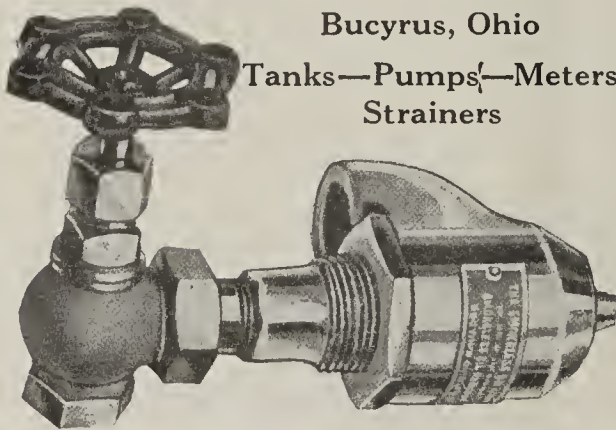
Oil is the cheap and convenient fuel. Easy to obtain, easy to handle. It will not only give you quality burns, but will lower production costs. Burn with oil.

Let our Engineers give you some real helpful suggestions on oil burning. No obligation.

The Smokeless Oil Burner Co.

Bucyrus, Ohio

Tanks—Pumps—Meters
Strainers



TO START NEW PLANT IN MAY

The new brick plant of the Canton Brick & Fireproofing Co. at New Comerstown, Ohio, will be turning out brick in May, with at least 100 men on the payroll, it was announced. The plant will open with seven kilns and later 24 will be in operation.

DRAIN TILE COMPANY ORGANIZED

The Burkettville (Ohio) Tile Manufacturing Co. has been incorporated with a capital of \$16,000 to manufacture drain tile and other clay products, it is said. Incorporators are J. B. Hemmelgarn, Lawrence Wimmers, Lewis Minch and D. A. W. Schweitzer.

NEW FIRE BRICK COMPANY

The Hickory Mining Co., Finance Building, Cleveland, Ohio, is contemplating the building of a plant to manufacture fire brick, it is said. The company owns 400 acres of valuable clay land in eastern Ohio. C. W. Miller is president of the company.

SHARON SALE RATIFIED

Ratification and approval of the sale of the Sharon Clay Products Co., Masury, Ohio, was made April 4, when stockholders of the company met in the company's offices. The plant was recently sold to C. H. Rhodes and H. R. Beagle of New Galilee, Pa.

NEW COMPANY IN DAYTON

The Independent Shale Products Co., of Dayton, Ohio, has been chartered with a capital of \$250,000 to manufacture various kinds of clay products, it is reported. The incorporators are S. W. Miller, John H. Best, Ezra Shank, A. S. Weller and Carl Bauer.

ORGANIZE UNION BRICK & TILE CO.

A new company has been organized at Fostoria, Ohio, under the name of the Union Brick & Tile Co. This company has taken over the Hatton Brick & Tile plant in Fostoria. Officials are: E. G. Mueller, president; R. C. Guernsey, vice-president; A. J. Stackhouse, secretary; and Joseph Barsky, treasurer.

FORM BRICK AND CEMENT COMPANY

The Erie Brick & Cement Co., has been chartered with a capital of \$50,000 with headquarters at Sandusky, Ohio, to manufacture and sell brick, tile and other products. The incorporators are Bert D. Smith, William A. Lockwood, John A. Millott, W. F. Ohlemacher and G. William Doerzback.

MAPLETON ELECTS OFFICERS

At a meeting of the directors of the Mapleton Clay Products Co., Canton, Ohio, new directors were elected as follows: Joseph M. Blake, William Thom and W. E. Masin. Directors re-elected were, E. J. Schario and Ira Pence. The officers elected were, president and general Manager, E. J. Schario; vice-president, Ira Pence; secretary and treasurer, W. E. Mason.

INSURES EMPLOYEES LIVES

Ohio Valley Clay Co., Steubenville, Ohio, very pleasantly surprised its employees by announcing that the company had provided them with life insurance to show its appreciation of their valued loyalty, cooperation and good service to the concern. Every new employee, after being in the service for three months, will receive a policy. The insurance remains in force at the company's expense as long as the employee is with the firm.

FORM COMPANY AT TIFFIN, OHIO

Papers have been filed with the secretary of state chartering the American Clay Forming Co., with an authorized capital of \$25,000, it is stated. Headquarters are at Tiffin, Ohio. The company will manufacture certain lines of clay products including common brick and hollow building tile. The incorporators are Rose Stoffer, Daniel McPhail, John Holland, Gladys McPhail and Shirley Stoffer.

SCHNEIDER BUYS COAL MINE

Herman C. Schneider, of Canton, Ohio, leading figure in the H. C. Schneider Sewer Pipe Co., which concern is in the hands of receiver H. A. Youngen, is organizing a new company to take over his former concern's holdings, which he purchased recently at a receiver's sale, a report states. This is the Margretta Collieries Co.

This became known when Judge W. V. Wright gave Schneider until May 1 to complete organization of the new company and pay the balance due on the purchase price of "D" mine and other coal properties.

RAISES WAGES TO 60 CENTS

Adoption of the Henry Ford plan of a minimum wage was announced recently by the Union City Clay Manufacturing Co. of Empire, near Steubenville, Ohio, one of the largest manufacturers of clay products in America.

The new wage plan is just now effective and includes every workman in the plant, numbering 350. The minimum wage scale will be 60 cents an hour hereafter and the scale for higher priced workmen will be proportionate. This represents an increase of approximately 33 1/3 per cent. The common labor scale during the past three months has been 40 cents per hour.

In addition to the big wage increase and the adoption of the new plan, it was announced that many additional employees would be hired.

"This is an experiment with us," said George M. Myers, general manager of the plant, in discussing the announcement. "We have only a few details of the Ford plan, but they have impressed us so much that we believe it will benefit us to try them out.

"We expect to secure better cooperation between our employees and officials and better results in workmanship should result. If the plan works for Ford we believe it should also work for us.

"We also hope thru our new plan to obtain a better class of workmen, steady workers, regularly employed at a scale of pay above the 'bread line' and better service for better wages should, we feel, do all for us that it has done for Ford."

The Union plant is the first in eastern Ohio to adopt this plan.

As a result of this wage boost given employees of the Union Clay Manufacturing Co. practically all other clay products plants in the Toronto, Ohio, district are following suit.

Shortly after the announcement that the Union company had adopted a wage system similar to the Ford plan with a minimum wage of \$5.40 a day, the American Vitrefied Products Co., Kaul Clay Co. and the Stratton Co., employing 850 men, approved a labor rate of 60 cents an hour, effective immediately.

PORTLAND'S OWN YOUR HOME SHOW

Own your own home week was staged at Portland, Ore., April 10 to 14, inclusive, in the Auditorium, the largest building of its kind that could be obtained. Everything entering into the building of a home as well as the many useful articles to furnish it were on exhibition.

The Denny-Renton Clay & Coal Co. of Portland and

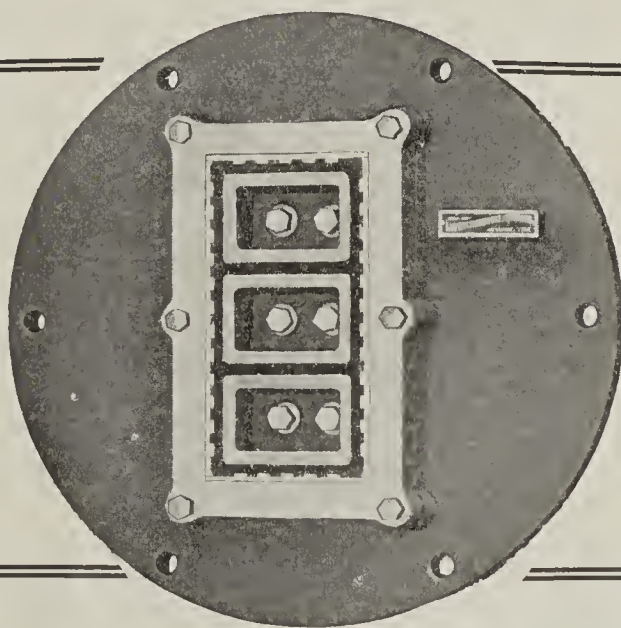
BEFORE YOU BUY THAT NEW DIE—

get in touch with us. We have had many years' experience manufacturing clay working dies of all descriptions. Every die that leaves our shop we aim to fit the characteristics of that machine.

Whatever die you need, mail us a rough sketch and let us figure on it.

THE LOUISVILLE MACHINE MANUFACTURING CO.

Louisville, Ohio



*"If It's Dies You
Want
We Make 'em"*

When You Install—

TORONTO EQUIPMENT

you are assured of
high efficiency, low
installation and main-
tenance expense, unin-
terrupted operation,
full and continuous
production.

TORONTO

Dry Pans
Barrows
Sewer Pipe Dies
Wet Pans
Press Feeders
Clay Conveyors
Sewer Pipe
Presses
Clay Elevators
Pan Feeders
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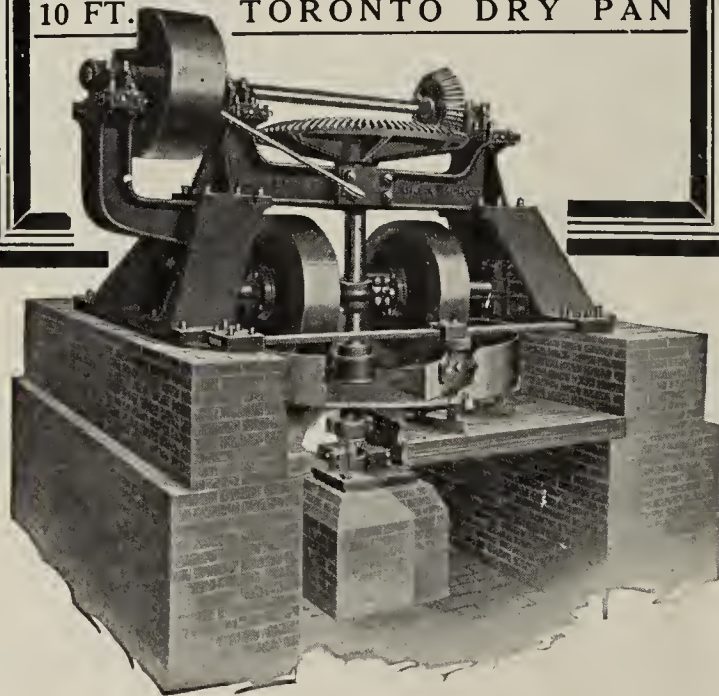
are—

“Built To Give Service”

The
**TORONTO FOUNDRY
AND MACHINE CO.**

TORONTO, OHIO

10 FT. TORONTO DRY PAN



Seattle, had the only display of clay brick, tile and terra cotta, including roofing tile, on the floor.

A most interesting crowd was constantly in attendance, showing clearly that the general public is much impressed by the beauty and many other good qualities of burned clay ware especially when it is well made as is the case with the exhibit herein referred to.

BIG REFRACTORIES MERGER REPORTED

Negotiations for the purchase of American Refractories Co. by the General Refractories Co. have been concluded and it is said that the merging of the two companies now awaits only the formal approval of the stockholders of the two organizations.

By this purchase the General Refractories Co. increases its annual capacity to about 300,000,000 brick, making it the second largest producer in the country. The American has plants at Baltimore and at Danville and Joliet, Ill. The recent purchase will add particularly to the company's silica and magnesite brick capacity.

TO BUILD HOMES FOR EMPLOYEES

The Kane (Pa.) Brick & Tile Co. is maintaining active operations at its plant, and orders on hand and being received are said to insure the present schedule for an indefinite period. The company has tentative plans under consideration for the erection of a number of dwellings for its employees at East Kane.

WILL IMPROVE PLANT

The Auburn (Pa.) Shale Brick Co., will soon commence an extensive improvement program at its plant, including extensions in operating equipment and repairs to machinery. Operations will be curtailed temporarily during the work. The company plans to reopen with a heavy production program.

BUILDING IN PHILADELPHIA EXPOSITION

An embracing and authoritative display of architecture, building and building materials will form a considerable part of the Philadelphia Palace of Progress, a civic-industrial exposition to be held in the Commercial Museum May 14 to 26 to celebrate the 240th anniversary of the founding of Philadelphia. The exposition will represent the civic, municipal and industrial advancement of Philadelphia.

One of the most effective features of the architectural and building division will be a complete model home, to be erected by a prominent Philadelphia builder under the direction of D. Knickerbacker Boyd.

GEO. CUTBUSH RESIGNS

Geo. Cutbush has resigned as superintendent of the Atlas Brick Co.'s plant at Milton, Ont.

J. PARFIT HEAD B. C. CLAY MANUFACTURERS

At the annual meeting of the clay products manufacturers of British Columbia, J. Parfit of the Victoria Brick Co., Victoria, B. C., was elected chairman, and D. W. Campbell of Furnell & DeLong, was elected vice-chairman.

TO BUILD PLANT IN MONTANA

C. E. Oakland, vice-president of the Red Cliff Brick Co., Medicine Hat, Alta., has been looking over the ground at Shelby, Mont., and it is reported that his company will establish a plant within two miles of that city to have a capacity of 40,000 pressed and repressed brick daily.

NATIONAL MOVES OFFICES

The National Brick Co. of Laprairie, Quebec, is moving its offices, on May 1, from the Drummons Bldg., 511 St.



Five more

BAY CITY Excavators

are being shipped this month to California, to clay plants who purchased them to CUT LABOR COSTS AND TO INCREASE THEIR PRODUCTION.

The Digger that even the small plants can afford

THE
Bay City Dredge Works
BAY CITY, MICH.



"Firemen's Delight"

Mined in the heart of the Clinton, Indiana Field, which is generally conceded to contain a quality in its "Fourth Vein" that is second to none in the Bituminous Coal World.

Preparation? — Our Hobby. We use the latest improved Shaker Screens, Loading Booms, and Picking Tables—and employ men who operate them with 100 per cent. efficiency.

The very coal you need to solve your steam and clay burning problems.

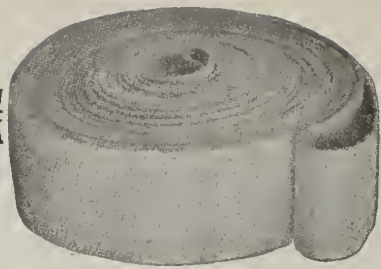
Zimmerman Coal Company

609 Tribune Building

Long Distance Wabash 9921

Terre Haute,

Indiana



"The Best Conveying Belt in America"

writes one manufacturer in
Kansas City, Mo., about

GREEN DUCK BELTS

They further state—

"We believe the Allied people have one of the **best conveying propositions on the market**, and believe it so strong that we have tied up several thousand dollars in them."

This is one of many companies that are sold on **GREEN DUCK Belting**. For elevating, conveying, or transmitting, there is **NONE BETTER**.

Write for samples and prices.

The Allied Belting Co.
GREENVILLE, OHIO



Catherine Street, West, Montreal, to the Canada Cement Bldg., Phillips Square, Montreal. The National Brick Co.'s output last year was about three times that in 1921 when the output was 60,000,000 brick. The outlook for 1923 is for a considerable increase in production. Demand for brick for a number of larger buildings is anticipated this year.

Machinery and Equipment

Devices and Methods, New and Old Concerning Which Information of Interest to the Clay Manufacturer Is Published

PORTABLE LOADERS DECREASE COSTS

The adaptability of the type of portable loaders made by the Barber-Greene Co., of Aurora, Ill., for many purposes thruout the clay products plant is demonstrated by the records made at various installations. These loaders are used for the very first and very last and many intermediate operations in the manufacture of clay products.

Figure 1 illustrates the method of loading clay from the bank into the industrial car ready to be hauled to the plant. It can be seen that all the men do, is to push the material down the bank into the hopper of the conveyor. The con-



Figure 1. Loading Clay Into Car at McAvoy Vitrified Brick Co., Philadelphia

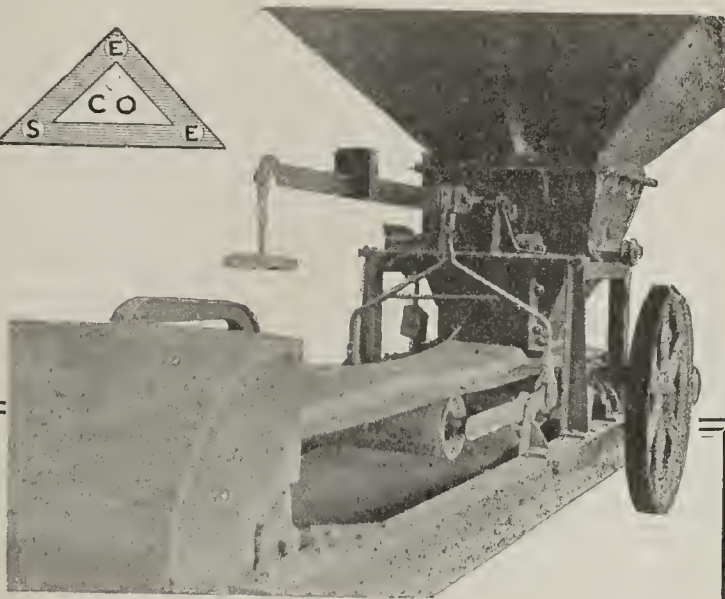
veyor itself completes a well trimmed load insuring maximum capacity of the car. This view was taken at the plant of the McAvoy Vitrified Brick Co., at Philadelphia. This same company uses another conveyor of the same type for unloading run-of-mine coal direct from the car to storage. The conveyor illustrated was purchased at the time when it was needed very badly to keep up production. It was shipped from the New York warehouse over night.

Figure 2 shows two conveyors unloading sand from river barges to stock pile at the plant of the Schultz Brick Co., at Kingston, N. Y. This company produces soft mud brick and

ATLAS

EXPLOSIVES

for quarrying



Don't Make Ware Out Of \$ \$ \$

Sell every pound of clay that goes thru your die. When you throw breakage back thru your machine either from the cutter itself, or from the dryer or kiln, it is the same as pouring your hard earned gold dollars into the machine.

The POIDOMETER will make it possible to greatly reduce or entirely eliminate waste and breakage by guaranteeing absolute uniformity of shrinkage at every point and for all your products. This is shown by the results of tests at the plant of Los Angeles Pressed Brick Co.

The actual tests are:

	Moisture in Clay on Poidometer	Moisture in Finished Ware
7:30 a. m.	12.5%	20.7%
10:45 a. m.	11.3%	20.4%
1:00 p. m.	9.9%	20.8%
4:00 p. m.	12.0%	20.7%



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SCHAFER

POIDOMETER

QUARRYMEN in every section of the country are adopting Atlas Ammite as their all-year-round explosive. Their attention was first attracted to this Atlas product as a winter explosive—Ammite cannot freeze. But its remarkable efficiency recommended Ammite for more than cold weather work. It often does the work better and at lower cost than ordinary explosives and it will not cause headaches when handled in large quantities. Let the Atlas Service Man show you how Ammite may be made to save money on your work.

AMMITE

—the all-year-round explosive—

ATLAS POWDER COMPANY
WILMINGTON, DELAWARE

Branch Offices:

Allentown, Pa.; Birmingham, Ala.; Boston, Mass.; Charleston, W. Va.; Chicago, Ill.; Des Moines, Iowa; Houghton, Mich.; Joplin, Mo.; Kansas City, Mo.; Knoxville, Tenn.;



Branch Offices:

McAlester, Okla.; New Orleans, La.; New York City, N. Y.; Norristown, Pa.; Philadelphia, Pa.; Pittsburg, Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis, Mo.; Wilkes-Barre, Pa.

**“We would not
be without them”**

Says Mr. Chas. W. Parker, manager of the Walsh Fire Clay Products Company, St. Louis, Mo., in regard to their complete installation of Wilson-Maeulen Pyrometer Equipment.

* * * * *

“We have 52 kilns, divided into three units. Each unit is equipped with the Wilson-Maeulen pyrometers complete with all the necessary parts, including a Tapalog and a multi-recording indicator for each unit, said instruments being located in the Pyrometer rooms.

“The burners and superintendents consult these instruments regularly day and night, and it very materially helps in handling the problem of burning. And, too, the Tapalog gives us a record of performance which may be consulted afterwards should occasion arise.

“WE WOULD NOT BE WITHOUT THEM, and consider that they are as much use in the plant as a steam gauge is on the boilers. Our superintendents have learned to rely on them, and it is the general consensus of opinion that they have filled a long-felt want.”

* * * * *

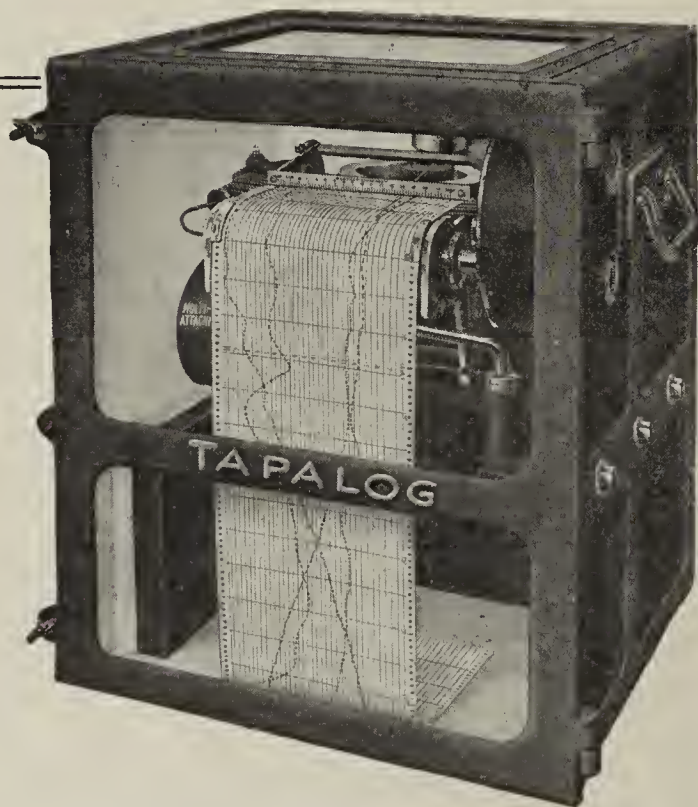
Wilson-Maeulen Pyrometers afford the truest combination of accuracy—durability—and convenience in burning ware.



251

Write our Engineering Dept. for advice and estimates. No obligation.

WILSON-MAEULEN COMPANY
738 E. 143rd St. New York



the sand is used both for lining the molds and also for mixing with the clay to produce the proper plasticity and structure desired. Naturally, the cost of handling the raw materials in these two cases has been greatly reduced by the use of these conveyors.

Figure 3 shows a view loading finished brick from a kiln to a truck at the plant of the Windsor Brick Co., Akron,



Figure 2. Unloading Sand from Barge to Storage Pile at Schultz Brick Co., Kingston, N. Y.

Ohio. The same type of conveyor is used by the Camp Brothers Co., of Mogadore, Ohio, for loading their brick. At this plant at times they use seven conveyors in series, and load between 80,000 and 100,000 brick per day. Five men and one foreman are all of the labor required. This installation has reduced the loading of brick 66 per cent. This reduction has been made possible chiefly because of the elimination of wheelbarrows.

Another use to which these conveyors are put at other plants is to assist the setting gang. Strips of wood are placed



Figure 3. Loading Brick from Kiln to Truck at Windsor Brick Co., Akron, Ohio

on the belt to carry the ware from the ground level to the setters. This type of conveyor, therefore, eliminates the hard work of tossing in the kiln. Naturally, the cost of setting is reduced.

The large tonnages of clay, coal, sand and other materials handled by clay products plants justifies a thoro investigation of the cheapest method of handling this material by means of the conveyors described.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

Building Pace Waning, But It Is Desirable

THAT the greatest building boom in the history of the United States has begun to flatten out and is gradually tapering off, is indicated by figures on permits taken out during the last few weeks and by numerous reports of postponement of construction. Even projects that had already been started are now being abandoned in their partially constructed state.

The eastern section of the country is feeling the slackening of pace most, altho the movement is rapidly spreading westward. In New York City it is reported that \$100,000,000 worth of construction has already been postponed indefinitely. In Chicago \$75,000,000 worth of building work is being held up.

Several factors are contributing to the postponement and abandonment of construction. They have contributed toward increasing the cost of building to the point where it is no longer feasible to erect a structure with the hope of it being a satisfactory investment. The "snow-balling" of wages is the greatest of these factors. Building craftsmen are demanding excessive wages and the shortage of men is so tremendous that wage scales have very little significance. The tradesmen are paid according to how greatly the contractor is in need of them. It is also true that there has been some increase in the price of building materials, but these advances with few exceptions have been very moderate. Failure of the railroads to handle full requirements of building materials has caused a scarcity in some instances which has boosted dealer prices.

Architects are advising their clients to postpone construction and banks are drawing tight their lines on building loans. These are additional causes for the drop in construction volume.

Conservative persons in the building field, however, are of the opinion that the slackening of building from previous high records will prove a helpful factor in the long run. They argue that the abnormal demand for labor and material will lessen and while there will still be plenty of work to be put thru, material and labor figures will tend to become stabilized and the "snow-balling" of prices will stop.

Another gain, it is said, would be to spread the present building program over a longer period, thus giving steady work to mechanics and steady orders to the material concerns.

In 1920 when building stopped, there was a buyer strike which was widespread and affected almost every industry and commodity. The lowering of building material prices at that time did not help matters in the building field immediately because people would not buy in a falling market.

We do not anticipate a slump similar and as long as that which commenced in the summer of 1920 because conditions are different. We do not have the same high degree of inflation in all industries as we did then; neither are loan rates as excessive as they were in 1920. There are considerably fewer complications to be ironed out. The slump should be short and is un-

Not a Typographical Error

Telegrams, letters and phone calls inquiring as to the correctness of the announcement made in last issue of Brick and Clay Record about a story soon to be published, telling how a clay plant, by the installation of equipment just completed, will save in payroll, it is estimated, the staggering sum of \$72,000, have been received. No—this was no error. In fact, this estimate includes only one plant. Total savings are really more—be sure to read the story which is crammed full of great ideas in May 29 issue.

doubtedly desirable because it ought to put construction on a sounder basis.

There is one factor that may upset all predictions. The labor shortage in this country is so great that it is a very serious problem. Whereas in pre-war years, business became saturated before labor supply was used up, under present conditions employment of labor becomes saturated long before business does. This situation is one of the most serious problems facing the nation today.

Wanted—A National Drain Tile Association

COMMON BRICK, face brick, hollow tile and paving brick are being adver-

tised nationally. The success of the campaigns waged by these products mentioned has been very gratifying and as a consequence, the promotion work is constantly being expanded.

In view of such splendid examples why do not the drain tile manufacturers get together and do some collective advertising? At the meeting of the Illinois Drain Tile Manufacturers Association in Chicago recently, this subject was brought up for discussion and representative manufacturers from Ohio and Indiana who were present were asked to give their views. Nothing was accomplished, however, and no definite plans regarding national advertising were formulated.

The drain tile business at the present time is not a very attractive one. There are few manufacturers who are making profits at all commensurate with their investment and time and effort expended. The reason is that there is not enough business to go around. This is a condition which is unnecessary and which can be remedied. Every expert in the country will acknowledge that the potential field for drainage is so great as to stagger the imagination.

If this is true, then the drain tile manufacturers should lose no time in organizing that they might stir up this vast market and create more business. There is hardly a product manufactured whose use can not be increased thru advertising of the right kind, and this applies also to drain tile. The farmer is susceptible to advertising influence and if he is shown all the advantages of tile drainage, as well as methods of financing a drainage project, he will be much more ready to put his money into drain tile.

Every other branch of the clay industry has organized successfully. Drain tile manufacturers only have been backward and unwilling to take the step. It is high time that they get together, forget price wars, and create such a large market that there will be business enough for all and cut-throat competition will be unnecessary.

All that is necessary is for one or two manufacturers to take the initiative, bring together those who have manifested an interest in the idea and formulate definite plans for a National Drain Tile Association.

Propose National Drain Tile Publicity

Six Illinois Clay Products Associations Meet in Joint Convention May 8—Drain Tile Men Talk of National Organization—Over 60 Ceramic Men Attend Meetings

PRACTICALLY every organization of clay products manufacturers in the state of Illinois met in convention at the LaSalle Hotel, Chicago, on May 8. The Illinois-Indiana Division of the American Face Brick Association, the Illinois Drain Tile Manufacturers' Association, the Illinois Paving Brick Manufacturers' Association, and a group meeting of the Hollow Building Tile Association all met together with the Illinois Clay Manufacturers' Association, which held its 45th annual convention. All the delegates to these meetings were invited to attend a meeting of the Chicago Section of the American Ceramic Society, which was held on the same day, beginning with a dinner at 6:30 P. M.

Attendance Is Very Good

Despite the fact that this is a very busy season of the year some 60 clay products manufacturers and others interested in the industry, managed to find the time to attend these meetings. Sessions of the various associations were begun at 10:00 A. M. Each of them met separately and discussed problems of interest peculiar to their products.

The session of the drain tile men was very interesting and was opened with a talk by J. A. King, editor and publisher of the National Reclamation Magazine of St. Louis. Mr. King, who is an enthusiastic booster for tile drainage, gave many interesting facts and features on the subject. His topic was, "Where Is the End of Drainage?" and his answer to this question was that drainage had only just begun. He called attention to the farm drainage law in effect in Wisconsin which provides means for the farmer to finance detail drainage projects with the help of the county and by the issuance of long term bonds. He recommended that such a law be established in every state where tile drainage is a big factor to the farmer.

Plan for National Drain Tile Advertising

Following Mr. King, Professor Otto R. Zeasman, drainage extension specialist of the University of Wisconsin, gave some interesting facts. He stated that in Wisconsin there are 3,000,000 to 3,500,000 acres of well developed farm lands which offer a big field for drainage.

J. A. Reeves, of the Streator (Ill.) Drain Tile Co., placed before the association a suggestion for organizing all state associations of those states interested, for the purpose of promotion work to sell drain tile. This would mean practically a national association of drain tile manufacturers organized for the purpose of stimulating the sale of drain tile. There was considerable discussion on this question and representatives from Ohio and Indiana voiced their opinions. Certainly, there is no reason why drain tile cannot be advertised successfully as have paving brick, hollow tile, face brick and common brick.

A. F. B. A. Division

The Illinois-Indiana Division of the American Face Brick Association held its usual interesting meeting and members were informed by Division Secretary, Harry Baldwin of the new posters which the American Face Brick Association has presented for distribution to manufacturers and dealers. This is a splendid advertising stunt and will be especially helpful to the dealer as it will give him something to show prospective home builders. Page 700 of this issue contains illustrations and descriptions of these posters.

Starting with a luncheon at 1:00 P. M. the Illinois Clay Manufacturers' Association opened its meeting. The attendance was excellent and the program very interesting.

A. H. Sheffield Has Good Paper

Albert H. Sheffield, secretary of the American Terra Cotta & Ceramic Co., read an exceedingly interesting paper on "The Relation of Sales to Manufacturing." The sales and production departments must work as one and in perfect harmony with each other in order to produce the best results for the organization, he said. A real salesman, Mr. Sheffield said, is of great value to the production department and for that reason every organization should strive to establish the right point of view between the office and factory.

Green Colors on Face Brick

Following Mr. Sheffield, James A. King addressed the assemblage on the subject, "What the Buyer Must Be Shown." Speaking from the point of view of the hollow tile manufacturer, he stated that the manufacturer must show the customer, especially the farmer, that buildings built with his product are economical, durable, fireproof, sanitary, comfortable and possess other advantages which the buyer demands.

Ralph K. Hursh, Department of Ceramics, University of Illinois, gave an interesting talk on the production of green colors on face brick. From tests which have been made at the University, it would seem that green colors can be produced in a number of ways. In certain clays, green colors can be produced by a reducing condition, generally toward the end of the burn, usually followed by decided oxidizing and quick cooling. Burning green brick on a commercial scale is a difficult proposition and so far Mr. Hursh pointed out that it has not been determined just what type of clay is necessary to produce this color.

Another interesting talk on the program was that by Thomas N. McVay, of the Department of Ceramics, University of Illinois, who gave some good pointers on "Efficiency in Clay Haulage." He brought out the importance of keeping tracks and other equipment in first class condition as poor tracks require the expenditure of very much more power and effort. Mr. McVay's paper concluded the sessions of the Illinois Clay Manufacturers' Association.

The following officers were elected: James A. Reeves, Streator (Ill.) Drain Tile Co., president; Dr. Brosman, Albion, Ill., vice-president, and Prof. C. W. Parmelee, University of Illinois, secretary and treasurer.

Chicago Section of A. S. C. Entertains

Most of the clay products men in attendance in the morning and afternoon sessions above mentioned, were present at the dinner and entertainment of the Chicago Section of the American Ceramic Society held at the Hamilton Club at 6:30. There were no papers or addresses of any kind scheduled for this meeting, it having been decided by officers of the Chicago Section to get together in a good fellowship meeting and to have a good time. The program was an excellent one and compared favorably with some of the old time "section Q" meetings of its daddy, the American Ceramic Society.

COMMON BRICK IN BIG DEMAND

"There is nothing in the current month's reports from the common brick manufacturers of the country to give support to the 'experts' prediction of a building slump," says the Monthly Digest for May issued by the Common Brick Manufacturers' Association. This digest continues, "A great deal of material that is being delivered today is for jobs that were started in 1922. At the same time there are a great many new operations getting under way, and it would appear at this time that there will be about all the work in the construction field that the labor supply is able to handle."

"Reports from 128 companies representing every part of the United States show a gain in orders on their books in every district without exception. There is a gain of 161,000,000 brick in 'Orders on Books' since the last report was compiled."

The price of common brick remains practically the same thruout the country in spite of the strong demand. When the last report was compiled a month ago, nearly 35 per cent. of the plants reported were closed on account of bad weather, while today a little more than 20 per cent. of the plants are idle.

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APRIL BUILDING INCREASE 7 PER CENT.

The rate of increase in building operations showed signs of slackening in April, according to F. W. Dodge Corporation. The increase over March in 36 eastern states was only 7 per cent. whereas April normally shows an increase of 15 per cent. to 20 per cent. over March. In view of the enormous volume of operations started since the first of this

year, this slowing down of the seasonal rate of increase is a wholesome sign.

Total contracts awarded during April in the 36 eastern states amounted to \$399,243,000. In 27 of these states, the record shows an increase of 1 per cent. over April of last year. Construction started from January 1 to May 1 shows an increase of 15 per cent. over the corresponding period of 1922. On April 1, the record showed an increase of 23 per cent. over the corresponding period of last year.

Another important item in the April record is the reduced volume of contemplated new work (pre-contract stage) reported. The amount reported for the 36 states in April was \$653,805,000, a decrease of 17 per cent. from the amount reported in March. The southern district was the only one showing an April increase in contemplated work.

The April record in detail included the following items: \$175,129,000, or 44 per cent., for residential buildings; \$67,228,000, or 17 per cent., for public works and utilities; \$53,826,000, or 13 per cent., for business buildings; \$39,803,000, or 10 per cent., for educational buildings; and \$33,335,000, or 8 per cent., for industrial buildings.

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BRICK FROM HOLLAND COME IN FREE

As Holland does not impose a duty on brick imported from the United States, customs collectors have been advised to permit free entry of brick imported from that country, by McKenzie Moss, Assistant Secretary of the Treasury, in charge of customs.

**Californians Organize to Advertise Common Brick**

CALIFORNIA, altho endowed with wonderful climate, beautiful country, excellent living conditions and other natural advantages, is woefully lacking in its appreciation of ideal housing. It seems that people have just flocked to the Golden State, liked it and decided to live there. Little thought was given to the selection of materials to go into their homes. As a consequence brick has suffered immensely.

Any one who travels thru California cannot help but be impressed with the great lack of brick homes in that state. The proportion of brick homes to dwellings, if it were investigated and compared with the records of other states, would probably show an extraordinary low rate. The ambitious and progressive lumberman has been partly responsible. The lack of appreciation of the comforts and value of a brick home on the part of the populace is another reason. But back of all of this lies the apathy of the brick manufacturer who has failed to overcome the inertia that is causing brick homes to go unconsidered.

But the apathy of the brick manufacturer in this case can be largely explained. He has been busy trying to keep pace with the enormous growth and development of the Golden State. He has now, however, established himself to take care of the business and he is looking into the future.

Form Association to Promote Brick

On May 7 and 8, the Common Brick Manufacturers' Association of California was successfully organized with the following as officers: President, Walter Simons, Simons Brick Co., Los Angeles; vice-president, W. W. Dennis, McNear Brick Agency, San Francisco; secretary and treasurer, L. S. Collins, Los Angeles Brick Co. The above, with W. P. Dwyer, Sacramento, and J. W. Rice, San Diego,

compose the board of directors. J. A. Taylor of Los Angeles has been made temporary secretary.

It was voted at this meeting that an assessment of 25 cents per 1,000 brick for a three-year period be made on the sales of each manufacturer and that five cents of this be directed to the Common Brick Manufacturers' Association of America. With the funds thus derived, an extensive promotional and publicity campaign will be instituted thruout the state of California, urging an era of better built homes. The manufacturers of California are to be congratulated on this very excellent move.

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C. B. M. A. DIRECTORS TO MEET JUNE 11

Plans for the mid-year meeting of the board of directors of the Common Brick Manufacturers' Association of America have been laid by the executive staff at Cleveland, Ohio, headquarters. The meeting will be held at Cleveland during the week of June 11. Practically a 100 per cent. representation of the board will be present, according to Charles A. Bowen, assistant to the president. The meeting will be devoted largely to plans for the next annual convention and a review of work in prospect for the last half of this year.

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BEG YOUR PARDON

In last issue of Brick and Clay Record there was published an item regarding the production, unfilled orders and stocks of fire brick. This item contained an error. It stated that the figures given were reported by 61 silica brick manufacturers to the Refractories Manufacturers' Association. This was a typographical error and should have been 14.

How to Outline a Dealer Policy

**Information Which Shows How
Two Large Face Brick Producers
Sell Their Output—Sales Policies
Backed by Years of Experience**

The statements here printed are conclusive evidence that the clay industry is becoming more and more broad minded. Certainly it is broad minded for a manufacturer to divulge to his competitor the methods by which he has been enabled to distribute his brick successfully. Such information is given here, describing the policies of highly successful face brick manufacturers.

AS A FITTING CLIMAX to a most complete series of articles covering the question of dealer distribution Brick and Clay Record here gives its readers an opportunity to follow the workings of dealer policies which have proved successful. In reply to a recent questionnaire to manufacturers of clay products several manufacturers sent a complete outline of their method of distribution thru the dealer. Two of these replies are reprinted here. They have been received from plants in the Middle West and in the East both of whom are large producers of face brick and prominent in the industry.

The policies outlined here are worth thoro study on the part of every manufacturer as it is possible to gain many splendid ideas from them. They are not mere theories of dealer distribution but are the policies which have spelled success for two concerns which admittedly rank with the leaders in their industry. The names of these companies have been withheld to spare them the trouble of answering many questions.

Following is the reply received from the manufacturer in the Middle West to Brick and Clay Record's questions.

What Is Average Output?

"Our average annual output of common brick is 4,000,000; face brick, 16,000,000; no other burned clay products made.

What Per cent. Is Sold Thru Dealer?

"The percentage of our face brick sold thru the dealer varies according to the season. The first four months of the year we sell almost exclusively to dealers. In the summer months when the building is going on actively we sell to both dealers and the owner or contractor direct. During the past year this averaged from about 90 per cent. dealer distribution in the winter months to about 70 per cent. dealer distribution in the summer months giving a grand average for the season of about 80 per cent. dealer distribution. The percentage of dealer-sold common brick is approximately the same as face brick. In this connection, I might say that about five years ago our dealer sales averaged about 60 per cent. and have been steadily increasing to the figure given above.

Do You Protect the Dealer?

"We protect the dealer on sales made in his territory direct by us when we have made with him an agreement to do so. This agreement will not be made by us unless we believe the dealer will give us satisfactory representation. This satisfactory representation is a rather elastic situation. In every case it requires that he keep our sample brick on display, that he make an effort to sell our product and acquaint us of the jobs coming up in his territory as well as cooperate with our salesman when requested.

"In the small towns we insist that the dealer handle no other brick which is similar or at all competitive to ours. In the larger cities where we deal thru concerns handling face brick largely, we of course do not attempt this restriction. We urge that the dealer stock our product altho in the smaller towns we do not insist on this. We also take into consideration whether the dealer has been handling our brick for a considerable period of time or whether it is a new territory and the idea of selling brick is new and strange for the dealer. In the latter case we do not push him too strongly on the stocking proposition altho we are great believers in this.

"We also consider location. In other words, we would expect a dealer in a small town which had a more favorable freight rate from ours than from any other competing plant, to stock more heavily than a dealer in a larger town where he was up against more severe competition.

Are You in Favor of 100% Dealer Distribution?

"We are in favor of 100 per cent. dealer distribution if we can find dealers in 100 per cent. of our territory who are willing to give us a square deal. However, we do not think it is a square deal for a dealer to ask for samples and quotations from a large number of competing face brick plants, to make no particular effort to sell face brick and wait for the large job to be sold by one of the plants represented and then insist on his commission on the sale.

How Many Dealers Sell Your Product?

"We have a mailing list of approximately 2,000 dealers to whom we send our quotations and our literature. Of this number at any one time we probably have on our books from 1 to 200. Over a period of two years we would probably have 500 of these dealers on our books. We can say that of the 500, two hundred buy something from us every year and the others only semi-occasionally.

"These dealers are in both large and small towns thruout the territory in which we sell our product.

Do You Sell Much in Small Towns?

"In late years we have sold approximately 25 per cent. of our output in towns of under 5,000 population. There is no question that the use of brick, and especially face brick, is growing rapidly in the smaller towns.

Do You Prefer Dealer?

"We always prefer to sell thru the dealer if the satisfactory arrangements previously described can be made. Our reasons for this are purely selfish. The chief reason is that if we can get the dealer pushing our product we feel we will sell

more of it. Of course, there are all sorts of other reasons such as having the dealer on the ground to take care of the shipment, finance the account, and so forth. But the real reason is that the good dealer helps us to sell brick.

What Differential Do You Quote Dealer?

"We have two discounts which we quote the dealer. We give the dealer who does not stock any brick but merely takes the order from our samples and calls on us for sales help on the larger jobs \$1 per M. below our market price. The dealer who is a little more active and who carries a stock in proportion to the needs of his market we allow \$2 on carload orders. Of course, we expect them to make much more than this on less than carload orders from their stock.

Should Dealer Sell Large Jobs?

"We believe the dealer should sell large jobs as well as small ones. Very often the manufacturer can be of considerable help in this connection and we are always glad to furnish this sales help without charge to the dealer.

How Do You Help the Dealer?

"What we do to help the dealer sell our brick can be grouped under the following heads: (1) Supplying samples or brick for panel office display without charge. (2) Send samples to such customers as he may designate. (3) Send our house organ and other literature to such architects, contractors or other customers as he may designate. (4) Write special sales letters to customers on which he may be working. (5) Get in frequent personal touch with him thru our traveling salesman and have this salesman aid him in making any local sales that the dealer may so desire. We frequently route our salesman to the dealer's town at his request at a special time to suit the dealer's convenience in selling to the local building committee or owner.

"I believe the above covers in a general way our attitude on this dealer proposition and I can sum it up briefly that we are for dealer distribution absolutely but it must be a fifty-fifty proposition."

The Policy of an Eastern Manufacturer

"WE HAVE BEEN MANUFACTURERS and distributors of brick for the past 22 years, and our active territory comprises a large percentage of towns having a population around 5,000. From our experience we have evolved a plan which has proven very successful in assisting the smaller dealer to increase his sales of brick.

We will establish an agency for the brick we manufacture and distribute with the most active local supply dealer, giving him protection on all sales made in his city, providing he does not handle or offer for sale any other face brick conflicting with our line; we to be the judge in this matter. *This Is Important.* Furthermore, we assist him in reselling the product to his customer.

Cooperation Is of Greatest Importance

"As a concrete example: Should Jones of his town contemplate the erection of a residence, the dealer notifies us and our salesman who covers this particular territory goes to the dealer and together they call on Jones, with samples of various shades and textures of facing brick. This gives the purchaser an opportunity to receive reliable information concerning the product, together with delivery dates, and so forth. If the sale is made, the dealer secures his profit and we make the sale. Under this arrangement there is one vital factor: You must keep the dealer sold on brick and at the same time see that he does not overlook any prospects. This

is done thru a follow-up on each dealer every month or oftener if we think necessary. Other operations, such as local schools, churches, and larger buildings are handled in the same manner.

Maintains Central Warehouse

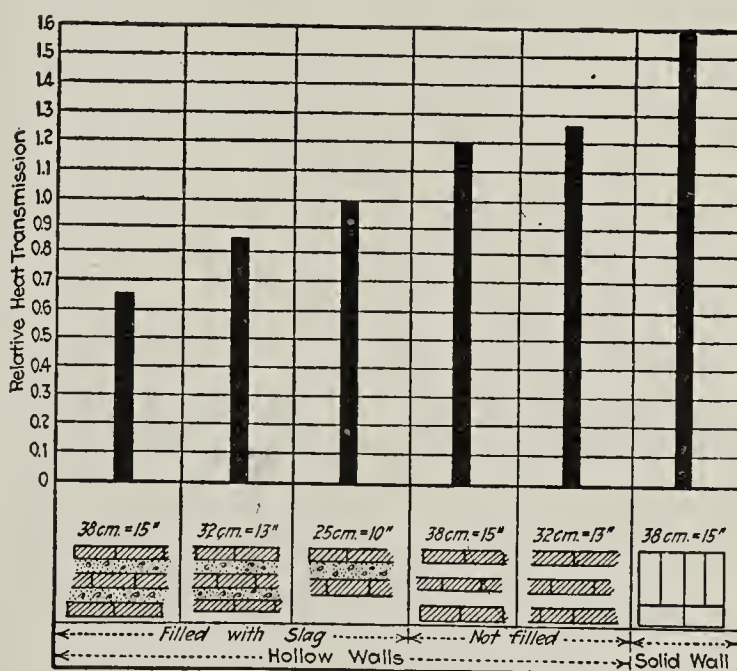
"Furthermore, for the convenience of our dealers we maintain a central warehouse, where large stocks of face brick are stored, so that local shipments can be made on short notice and dealers, within trucking distance can secure for their customers the same service given in the larger cities. Our display rooms also belong to our dealers and they can bring their customers or building committees there to inspect them.

"This has been our solution of the dealer problem, and with the following admonition any manufacturer can build up a most satisfactory distribution for his product: **First get a live dealer, and then keep him alive.**"

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HOLLOW BRICK WALLS SAVE HEAT

Tests of the transmission of heat thru solid and hollow brick walls made by Prof. W. Knoblauch in Munich are summarized in the diagram printed here. They show a reduction of heat transmission by the use of a hollow wall as against a solid wall of the same thickness of 20 to 25 per cent., and further reduction of heat transmission if the spaces in the hollow wall are filled with slag. Hollow brick



Relative Heat and Cold Insulating Value of Different Types of Brick Walls. From Tests of Prof. Knoblauch, Munich.

wall construction is coming into use in Germany, the 13-inch wall thickness being most common, and as the diagram shows this 13-inch wall has a much lower heat loss than a 15-inch solid brick wall. Dr. E. G. Friedrich, of Berlin, reports that the cost of mason work in brick dwelling house construction is 30 per cent. lower for hollow walls than for the old style solid walls, which in connection with the heat saving action is expected to bring about a rapid spread of the new form of construction.—Engineering News-Record.

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PUTS OUT SPLENDID FOLDER

A folder, which is a piece of startling typography, has been received from the Harbison-Walker Refractories Co. This folder advertises the bonding material "Thermolith" which is used in place of fire clay when joining refractory brick and block. The folder is really a splendid piece of advertising and should bring results for this product.

Making Stiff Mud Fire Brick

Good Fire Brick Can Be Turned Out by Auger Machine—
Article Tells of Many Problems Which Are Encountered

A. D. Cochran

Sales Representative, The Bonnot Co., Canton, Ohio

Editor's Note—The experience of A. D. Cochran, author of this article, covers 16 successful years in the production end of the fire brick business. Fifteen of these years were spent with Harbison-Walker Refractories Co.

Mr. Cochran spent six years at this company's Hays Works, the last two years being in charge of Plants No. 2 and No. 3. The company's laboratory is located at the Hays Works, giving Mr. Cochran an excellent opportunity to acquire valuable experience from that angle.

In 1911 he was transferred to the Birmingham Works and for five years was assistant superintendent there, in charge of all manufacturing. In 1916 he was promoted to the position of general superintendent, which position he held for four years. In January, 1920, Mr. Cochran was, at his own request, transferred to Harbison-Walker's Templeton plant and acted as general superintendent there for one year. Exactly a year later he resigned and accepted the position of general superintendent of mine and plant at the McFeely Brick Co., Bolivar, Pa. After 14 months at this plant he resigned and took a position in the sales force of the Bonnot Co., Canton, Ohio.

Mr. Cochran's experience covers the manufacture of silica, magnesite and fire clay brick, both hand and machine made. He is therefore amply qualified to write on the subject here treated.

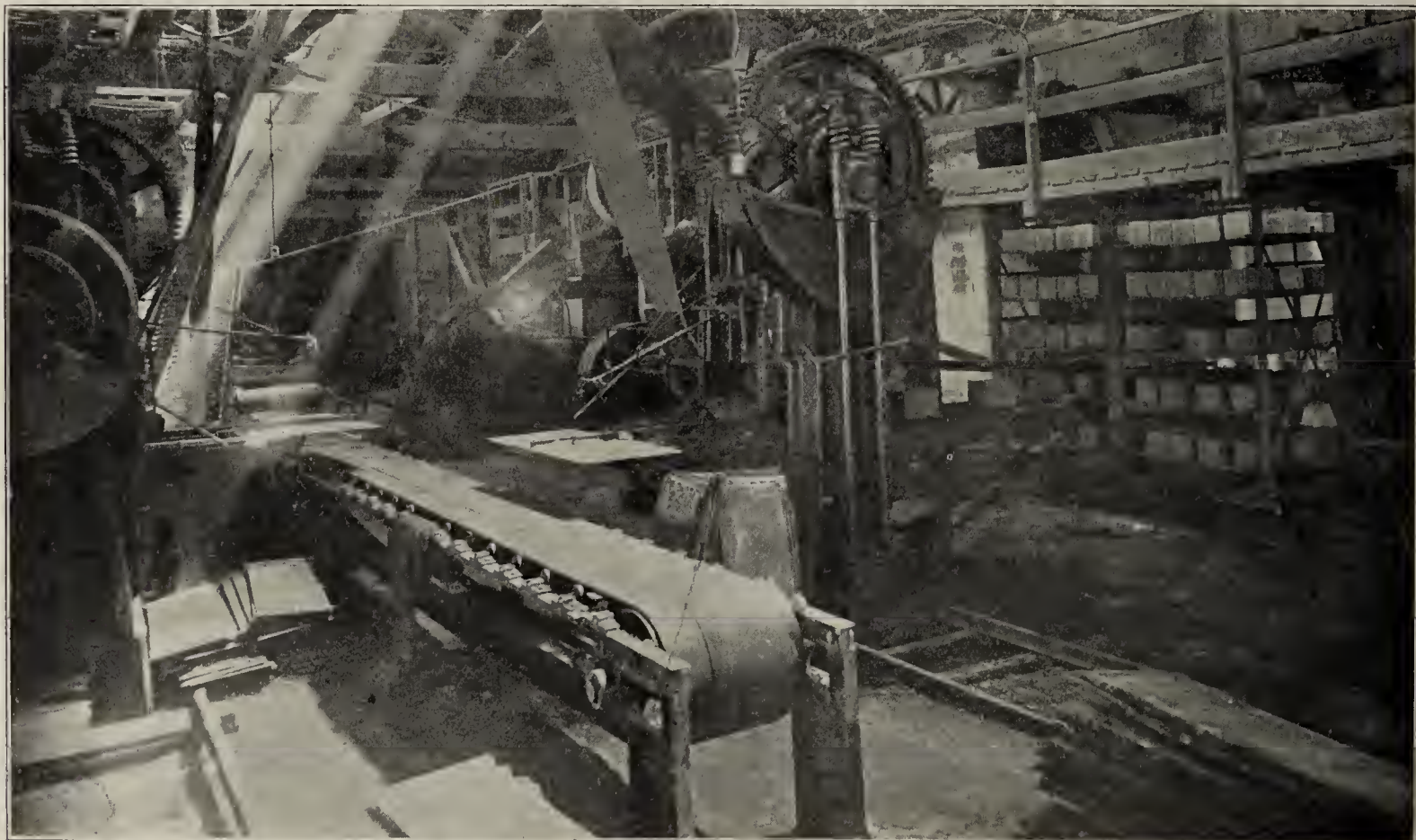
MANUFACTURERS of high grade refractories are faced with the problem of producing more ware with less skilled labor. This problem arises from the fact that, in the face of a large demand for their product, the supply of trained workers, particularly molders, is entirely inadequate; that where these workmen can be secured, their wages are very high; and that there is a very definite limit to production by hand methods. These conditions are making it a necessity for manufacturers to adopt methods which will enable them to meet the demand and keep their costs within reasonable limits.

The three machine methods that are being used at the present time to produce fire brick are the stiff mud, the soft mud and the dry press processes.

Each method has its merits. Of the three, the stiff mud is the most popular and is more widely used than the other two. It is the simplest one and the brick thus produced are suitable for a much wider range of service than is true of those manufactured by the other methods.

Objections to Machine Made Brick

In the past, the users of high grade fire brick have objected to all machine made brick. The cause of this objection was largely the tendency of machine made brick to spall, which in turn was caused by lack of knowledge and care in manufacturing the brick. These objections are becoming fewer and fewer as a number of the larger companies, by careful



View of the Machine Room of the McFeely Brick Co., Bolivar, Pa., Showing Repress Machines Used in Making Stiff Mud Fire Brick

Grind plastic clay as fine as possible.

Do not grind flint and calcined clay too fine.

Weathering clay greatly improves it. In fact some clays that can not be worked at all when green from the mine or quarry, will work easily after weathering.

The addition of calcined clay greatly reduces spalling. Each per cent. of calcined clay added will reduce spalling about five per cent.

Temper clay thoroly.

Keep moisture up to the maximum, rather than down to the minimum.

Cut brick as close to the die as possible.

Be careful to use a good grade of brick oil on the cutter and represses. Also use as little oil as possible, as excessive quantities will cause brick to crack.

Be very particular that there are no die cracks in the clay bar.

While the cracks will close in repressing they will open again in drying and burning and brick that show cracks will not give good service.

Be extremely careful in selecting equipment. The service is severe and the best equipment you can buy will prove the most economical investment in the end.

study and extensive research have evolved methods which enable them to turn out the highest grade refractories by the auger machine stiff mud process. These brick are being marketed under trade brands which have been famous for years.

Refractories made by this process are enjoying extensive use in blast furnace linings, stove linings, open hearth checkers, boiler settings and for other uses, including glass house work, and in at least one instance, malleable iron melting furnaces. The service they are rendering is excellent.

Lamination Can Be Controlled

The most serious fault in the past was the excessive spalling due to lack of porosity and extreme lamination. While the nature of the raw material has something to do with this, the controlling factors are the fineness of grinding, moisture content and the proper design of augers, dies, and so forth. In one case, the spalling was reduced from 28 per cent. to 14 per cent. by correcting these factors and this was done with no change in the raw material. This case clearly demonstrates that intelligent effort has overcome many of the difficulties which were once considered insurmountable in producing a satisfactory product by the stiff mud auger machine process.

The grinding in the hand made process was, in the majority of cases, done by wet pans. Fineness was determined by feeling the clay between the fingers. For brick of the type used in blast furnace linings, the grind was specified as "fine." While the wet pan grinding gave a plastic "feel" to the clay, and also what was termed a "fine" grind, there were a considerable number of coarse particles of flint clay that gave the brick the desired porosity.

Trouble Starts in Grinding

When the continuous stiff mud auger machine process was adopted, the dry grinding method was largely used. Here was where the trouble started. There is a vast difference in what was termed a "fine" grind in a wet pan and a fine grind by the dry grinding process. If finely ground, the clay will

work much more easily and the tendency was to grind too fine, and run the clay bar as stiff as possible. The fine grind, with the very stiff clay, made a dense brick which showed excessive lamination and made a poor showing in a spalling test. These brick, too, vitrified at a lower temperature. Bricklayers objected strenuously to these brick on account of the difficulty in cutting them. The great difference in two brick—one of "fine" grind and the other of coarser grind—can be clearly demonstrated by attempting to cut one brick and then the other. The coarser brick will cut very much the same as hand made brick, while the "fine" grind brick will spall and break. In fact, it is nearly impossible to cut it.

Mixing Methods

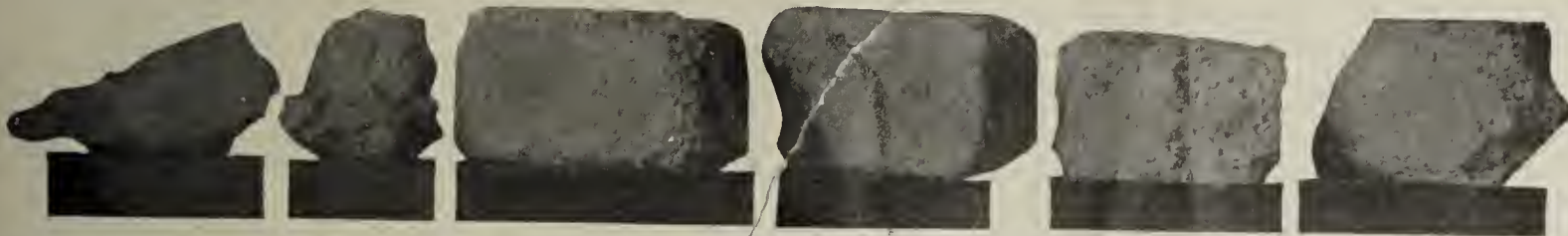
Where a formula is used consisting of two, or more, raw materials, some concerns make their mix in charging "buggies" or wheelbarrows and then dumping the charge into the dry pan. This method is not very satisfactory as it means an intermittent charge to the pan which consequently does not grind the plastic clay as fine as is desirable.

Other companies grind each of the different materials separately and mix them afterwards. Those that use this method usually grind the plastic clay so that it will go thru a 1/16-inch or finer screen. They grind the other materials (flint and calcined clay) to pass thru a screen of from 3/16 to 5/16 inch. One of the larger companies uses the latter method and gets excellent results.

This company has separate storage bins for the different ground materials and grinds the different clays separately. Under each bin there is a disc clay feeder. These feeders are all run at the same speed and have a gate that is adjustable to graduated openings. By setting the gates, they can get any desired proportion down to 10 per cent. These devices all discharge on a belt or conveyor which runs underneath and the results obtained are very accurate.

Avoid Insufficient Puging

Insufficient puging is a mistake which has been made in many instances in the past. When a large percentage of flint



Specimens of Clay and Brick: No. 1—Flint Clay; No. 2—Plastic Clay—Specimen of High Grade Fire Brick; No. 3—Hand Molded Repressed (Not Burned); No. 4—Auger Machine Repressed (Not Burned); No. 5—Hand Molded Repressed (Burned); No. 6—Auger Machine Repressed (Burned)



Specimens of Hand Molded and Machine Made Brick: No. 7—Machine Made—Very Fine Grade; No. 8—Machine Made—Medium Fine Grade; No. 9—Machine Made—Very Fine Grade (Note Excessive Lamination); No. 10—Hand Molded Repressed; No. 11—Auger Machine Repressed

Note Specimens Nos. 3, 4 (Bottom Page 853), 10 and 11 Are All Made from the Same Raw Materials—85 Per Cent. of Flint Clay and 15 Per Cent. of Plastic Clay. Clay Was All Ground the Same Fineness and Divided Into Equal Parts. Then One Portion Was Molded by Hand and the Other Run Thru Auger Machine, Both Being Repressed by Hand. It Is Next to Impossible to Tell from the Structure of These Brick Which Are the Hand Made Brick and Which Are the Machine Made Brick

clay is used, considerable tempering is required to give the clay the proper bond. In some instances the clay is run thru as many as three pug-mills—36 feet of pugging before the clay enters the auger machine. The more thoroly the clay is pugged, the better the product will be. This is particularly true when the clay is of a sandy nature, and when the plastic clay content is small.

In some instances the wet pan method of grinding is still in use. The pug-mill method, however, is cheaper and is generally used whenever the nature of the clay permits. The wet pan process is intermittent, requires considerably more power and more labor and is not in use to any great extent.

Important Factors in Molding

After the clay is properly tempered, it enters the auger machine which forms the clay bar. A great deal depends upon this operation. The design and speed of the auger must be right to insure a uniform flow of clay to the die for any given number of brick per hour.

Other important factors in this operation are:

1. The design of the die and auger.
2. The distance from the point of auger to the back of the die.
3. Lubrication.

There are other minor points to be considered and it is impossible to lay down any rule which will insure success on any or all operations. The nature of the clay and local conditions, in general, must be carefully studied. If intelligent effort is applied, there is small chance of failure here, particularly as the manufacturers of equipment will gladly give assistance in securing the right results.

After the clay bar leaves the die, the next operation is cutting it into brick of a size that will give the required cubical content to the finished product.

Some advocate cutting the bar into a block that will be considerably shorter and narrower than the press box die, and thick enough to give the right amount of clay to bring the brick to the required thickness. These brick are side-cut and turned over flat to be repressed. Another method is to cut the brick on the side and repress them flat. Others insert the side cut brick on edge in the press box. Still others advocate running the column or clay bar out of the die, flat, and repress on its flat side, the same as it comes from the die. They have this brick as near to the size of the press die as possible with merely enough clearance to allow the brick to drop freely into the die. It is argued that this latter method preserves the bond of the brick to a greater extent which is desirable where slight laminations occur. Another feature is that brick cut in this way have a smooth skin on the two larger surfaces (top and bottom) and also a skin on both

ends. The wires on the cutter will pass thru the clay bar much easier on account of its being much thinner.

Cut Brick Near Die

If the platens are made to cut the brick $4\frac{1}{2}$ inches wide, one set of platens will cut a great many different sizes of brick for the reason that nearly all standard fire brick will work out on a multiple of $4\frac{1}{2}$ inches.

A very important feature is to cut the brick as near to the die as possible to prevent swelling of the clay bar before it is cut into brick.

After the brick are cut to the desired size, the next operation is repressing.

When a power press is used, the rough brick are fed into the repress and discharged onto a belt from which they are picked off by hand and loaded onto dryer cars, or in some cases loaded onto trucks and placed on a hot floor to dry.

Drying Is Important

When the car and dryer method of drying is used, it is very important that the right equipment be selected. Some concerns use single or double deck cars of the same design as those used by building and paving brick manufacturers. With this style of car it is necessary that the brick be stiff enough to withstand the weight of the load they must carry.

This works out fairly well, yet one can readily see that the degree of stiffness which is necessary to keep the brick intact is a serious detriment to the product.

Rack cars equipped with pallets similar to equipment used by manufacturers of soft mud and silica brick are more satisfactory as they will allow the brick to be turned out much softer than is necessary with the other equipment. This point—the moisture content—cannot be emphasized too strongly and is one of the factors which will largely determine the degree of success in making stiff mud fire brick.

Another method of repressing is to run the clay out of the machine with about the same stiffness as a hand molded brick possesses. The brick are then repressed by hand. They are taken off the repress with wooden paddles and either put on pallet cars or placed on the hot floor to dry.

This latter method is, in the majority of cases more satisfactory than the power pressed brick. When the proper care is taken, it is possible to turn out brick that are superior to many of the hand made brick molded by inexperienced men.

A number of concerns are not only making their standard sizes by the stiff mud auger machine process, but in addition, are manufacturing large blocks and some special shapes where the quantity will warrant the expense of the outfits. They are also wire cutting rectangular tile as large as 24 to 30 inches in length. These larger sizes are not repressed.

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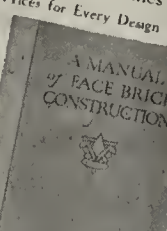
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What Will Your House Be Worth When 10 Years Old?

Frame House—Original Cost	\$10,000
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Sales Value of Frame House after 10 yrs	\$7,500
Face Brick House—Original Cost	\$10,700
Depreciation 10% a year for 10 years	535
Sales Value of Brick House after 10 yrs	\$10,165

AMERICAN FACE BRICK ASSOCIATION
130 North Wells Street - - - Chicago

THE AMERICAN FACE BRICK
130 North Wells Street - - -

Another Link in the Chain of Splendid Advertising Propaganda Which the American Face Brick Association Is Forging to Help Increase the Sale of Face Brick, Is Now Ready to Be Tested Out. This Latest Idea Is a Series of 14 Posters and Folders for Use by the Manufacturer and Dealer. There Are Nine Posters Which Are Used to Present All the Arguments in Favor of Brick Construction and to Show Why It Is Better and More Economical to Use This Type of Wall. These Nine Are Shown in the Illustration on This Page. They Are Supplied to Manufacturers and Dealers in a Convenient Size Designed to Fit into a Regular No. 10 Envelope. These Charts Are Also Presented as Display Posters on Bristol Board, 20x28 Inches Which Can Be Used for Window Display.

In Addition to These Nine, There Are Five Other Larger Posters, 30x40 Inches on Extra Heavy Board Which Also Make a Very Convincing Display. Two of These Are Shown at the Top of This Illustration. Those Posters Not Illustrated Here, Show Home Designs from the A. F. B. A. Plan Books, Books Relating to the Association's Plan Service, and Various Types of Designs of Brick Work and Residences. The Entire Set Presents a Complete and Splendid Argument Designed to Convince a Prospective Home Owner of the Advantages of Building a Face Brick Home.

Comparative Costs for Five Types of Construction

From average of 19 estimates for a 7-Room House in 13 leading cities

Face Brick	68% Only \$420 to turn a \$7000 Frame House
Concrete	75%
Stone	85%
Marble	95%
Gold	100%

Why It Pays to Use Face Brick!

Economic Reasons—

- 1 Reduces Upkeep—Maintenance
- 2 Very Small Depreciation
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- 4 Offers Security for Better Loans
- 5 Lowers Heating Costs
- 6 Adds to Comforts and Healthfulness
- 7 Can Be Readily Sold

Why It Pays to Use Face Brick!

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- 2 Adapts to Mason's Skill
- 3 Strength Far Beyond Needs
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Face Brick Homes Easiest to Finance

The Investment and Loan are Protected by—

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Bankers Value these safeguards in addition to your personal credit and ability to meet payments

USE FACE BRICK

Think This Over!

The Cost of Your Home Includes Upkeep and Depreciation

Compare Two Similar Houses—

Frame—Costing	\$8000
Brick—at 7% more	\$8560
—Over a 10 Year Period	

Both with Incombustible Roofs. The Lot Assessments and Taxes Will Be Practically the Same for Both

FRAME	
Interest at 6% on \$8000 for 10 yrs	\$4800.00
Insurance on major—Rate 1.4%	123.16
Depreciation on \$8000 at 1.5% a year	1200.00
Maintenance at 1% a year	80.00
Depreciation on lot at 1% a year	80.00
Total for Frame	\$6483.16
BRICK	
Interest at 6% on \$8560 for 10 yrs	\$5136.96
Insurance on major—Rate 1.4%	123.16
Depreciation on \$8560 at 1.5% a year	1284.00
Maintenance at 1% a year	85.60
Depreciation on lot at 1% a year	85.60
Total for Brick	\$6525.32
Extra Cost of Frame Over 10 yrs	\$2106.02
Additional First Cost for Brick	\$560.00
Balance in Favor of Brick	\$1546.02

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- Unlimited Variety of Permanent Colors and Shades
- Uniform or Mingled Tones
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Important Features Only By Face Brick

YOU CAN NOT AFFORD TO SAVE THE 7%

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Discuss Nation's Problems

U. S. Chamber of Commerce in Eleventh Annual Convention Takes Up Questions of Transportation, Building and Coal—Hoover Indicates Method of Maintaining Building Prosperity

TRANSPORTATION in all its phases provided the main topic for discussion at the Eleventh Annual Meeting of the Chamber of Commerce of the United States, held in New York May 8, 9, 10 and 11. Besides this the construction and coal industries came in for a considerable share of attention.

The importance to national business of a transportation system adequate to take care of all requirements was recognized and ways and means of coordinating all modes of transportation for the best interests of each and of the American business man, were discussed.

Barnes Tells of Country's Progress

President Julius H. Barnes in his talk brought out the fact that railroads in the last decade have made appreciable strides toward more efficient operation. He also gave a comprehensive picture of the progress made by the United States in the last ten years, since the "pre-war" year, 1913.

In an excellent address, the subject of which was "Holding on to Prosperity," Secretary of Commerce, Herbert Hoover analyzed the present situation of business prosperity and indicated ways by which it could be made lasting. It should at least be possible to maintain prosperity at a "normal" level and to make business more steady, eliminating the alternating depressions and boom times.

Hoover Speaks on Building

The building and construction industries came in for a considerable share of attention by Secretary Hoover. Speaking on this subject, he said:

"The construction of our buildings, our railways, our plant and equipment generally, naturally tends to expand parallel with the increased demand for consumable goods because people are both more courageous and easier financed in good times. We have not only the normal growth of the country to meet, but the long overdue and accumulated deficit. The delays of war and post-war slump, and our increasing efficiency in production all demand more buildings and transportation facilities.

"In addition there is a considerable expansion of Federal, state, and municipal construction. Tax free securities lie at the base of a good deal of this latter. Under these impulses great pressure is being placed upon our material manufacturers and our labor with a consequent tendency to rising costs. I recently made a recommendation that we defer all but the essential Government work and public buildings as much as possible so as to give full swing to private construction.

Endorse Delay of Government Building

"A representative and able commission of business men and labor which I requested to examine this question goes farther and recommends that we should do all our public works in times of depression and thereby provide greater continuity of employment and contribute to plane out the valleys of depression and level the peaks of booms. This deferment of public construction is more important now than ever for we need the full use of labor and material for long overdue private construction. We wish no cessation in this prime necessity.

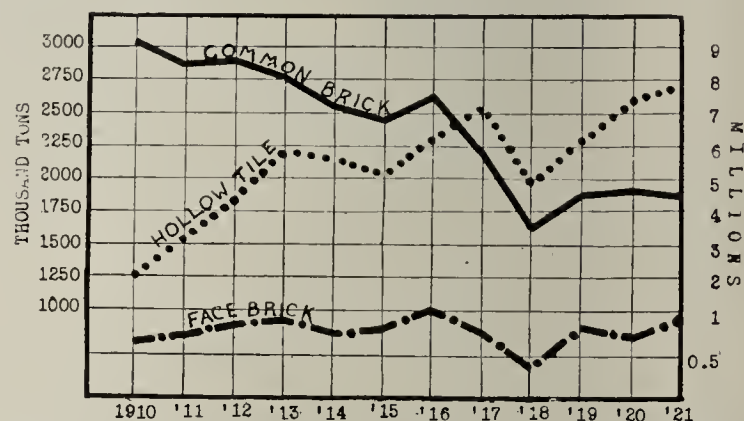
"It would be very helpful if such a policy of construction reserve could be well established by states and municipalities as well as the Federal Government."

The remainder of the program contained speakers of national and international repute. Many of the talks dealt with European problems and the effect of foreign conditions on American business.

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TILE CONSUMPTION INCREASING RAPIDLY

Here is an interesting curve showing the production of common brick, face brick, and hollow tile over a period of 12 years. This chart shows that hollow tile production is gaining in big strides every year and since the slump in 1918 the output has steadily increased year by year. Common brick, on the other hand, made a slight recovery following 1918,



Production of Common Brick, Face Brick and Hollow Tile. Figures at Left Are for Hollow Tile. Figures at Right for Brick

but has since then barely been able to hold its own. Production of face brick since 1918 has steadily increased although not in the same degree that hollow tile has advanced.

Over the period of 12 years, common brick production had dropped from a little over 9,000,000,000 in 1910 to 4,500,000,000 in 1921, a decrease of 50 per cent. The peak year for the common brick industry was 1906, in which a production record of 10,000,000,000 was made. Face brick production increased somewhat from over 700,000,000 in 1910 to almost 900,000,000 in 1921. Face brick production reached its highest record in 1916, when approximately 1,000,000,000 were produced.

Production of hollow tile rose from about 1,250,000 tons in 1910 to approximately 2,700,000 tons in 1921. This is an increase of over 100 per cent. Hollow tile is the "baby" of the three materials but its use is increasing tremendously.

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SEWER PIPE STANDARDIZATION UNDER WAY

A survey of the clay products industry will be made as the result of a preliminary conference of manufacturers called at the suggestion of the Clay Products Association and the Eastern Clay Products Association, which met in Washington on April 23, to consider the elimination of excess types and varieties of products produced by the membership of these associations and others. The survey will include the collection of information on the manufacture of sewer pipe and specials, drain tile and specials, flue linings, wall copings and specials. The results of the survey will be reported at a meeting to be held October 22, when the sizes and types to be eliminated will be determined.

At the meeting H. L. Shelley, secretary of the Eastern Clay Products Association, and chairman of the Simplification

Committee of that organization, presented a brief resume of the activities of that committee in conjunction with a preliminary survey that his association already has made. He argued that strict adherence to the specifications of the American Society for Testing Materials on deep and wide sockets would have a tendency to eliminate all other types. He also mentioned the A. S. T. M. specifications call for 15 sizes of sewer pipe from 4 to 42 inches in diameter.

Associated with Mr. Shelley on the Association's simplification committee are F. W. Owesney, of Steubenville, Ohio, and J. J. Blair, of Akron.

James L. Scott, of Macomb, Ill., with George C. D. Lenth, the secretary, constituting the simplification committee of the Clay Products Association, stated that his own and other companies favor the A. S. T. M. specifications and that he is securing good results in the efforts of his company to establish those standards. His company is on a mass production basis and intends to continue.

Among those present at the preliminary conference were George C. D. Lenth, of Chicago, secretary of the Clay Products Association; James L. Scott, of Macomb, Ill.; H. L. Shelley, of Philadelphia, secretary of the Eastern Clay Products Association; F. W. Owesney, of the East Ohio Sewer Pipe Co., Steubenville, O.; J. J. Blair, of Akron; C. L. Warwick, of Philadelphia, secretary-treasurer of the American Society for Testing Materials; E. W. McCullough, and P. E. Holden, of Washington, representing the Chamber of Commerce of the United States; William A. Durgin, chief, R. M. Hudson, and A. A. Stevenson, of the Division of Simplified Practice, Department of Commerce.

* * *

OFFERS FELLOWSHIP IN CERAMICS

The College of Mines of the University of Washington offers five fellowships for research in Mining, Metallurgy, and Ceramics in cooperative work with the Northwest Experiment Station of the United States Bureau of Mines at Seattle. These fellowships are open to graduates of universities who are properly qualified to undertake research investigations. The proposition is to undertake the solution of various problems that are of special importance in the State of Washington, the Pacific Northwest, and Alaska. The fellowship in ceramics will involve a study of super-refractories and whiteware bodies.

* * *

TESTS FOR HIGH-TEMPERATURE REFRACTORIES

In changing from coal to oil firing for warships, the Navy Department encountered such difficulties from the failure of refractories used in boiler linings under the high furnace temperatures that it became necessary to establish new testing methods in order to obtain satisfactory brick. G. M. Galvin, of the Navy Department Fuel Oil Testing Plant, describes these tests under the title "Solving the Refractories Problem of the Navy" in the Journal of the American Society of Naval Engineers for February, 1923.

The test described in Bureau of Standards Paper 10, somewhat modified, was adopted by the navy for determining fusion point. This modified test is conducted in a Hoskins type electric furnace, capacity to 3,000 deg. F., and Seger cones are used for pyrometric agents. The test consists of comparing Seger cones under heat with similar cones made of the material under construction.

As a result of examining some hundreds of brands of refractories purchased on the open market, the navy established its standard specification 50B6, covering workmanship and physical and chemical properties. The workmanship clause

is general. The physical requirements set 3,100 deg. F. as the minimum acceptable fusion point for firebrick and 3,000 deg. F. for fire cement. A composition of approximately 54 per cent. SiO_2 , 41 per cent. Al_2O_3 , and not over five per cent. total basic fluxes (Fe, Ca, Mg, K, Na), determined as oxides, constitute the chemical requirements.

The procedure in using these standard specifications is to examine a refractory for general characteristics and workmanship, to subject it to chemical analysis and to determine the softening temperature. This last is considered of major importance and final acceptance is based upon it.

After a refractory has passed the acceptance test described above, it is subjected to a simulative test, which duplicates, in so far as is possible, the conditions encountered in service. This test is conducted in a small oil-fired furnace. One side wall of the combustion chamber is constructed of brick and cement of the kind on which a test is desired, the opposite side wall of brick and cement already proving satisfactory. A compressed-air-atomizing fuel oil burner is used. The flame sweeps the length of the furnace, returns and escapes to the stack. The test comprises three runs at temperatures of 2,800, 2,900 and 3,000 deg. F. respectively, each of 24 hours duration.

During the test temperatures are ascertained at 15-minute intervals with a Morse optical pyrometer, sighting into the furnace above the burner. To compare the heat-insulating properties of the walls, temperatures of the outer faces are read each half-hour with the pyrometer sighting on the brickwork thru sillimanite tubes, the ends of which are placed flush with the walls.

Immediately after each run a spalling test is conducted by injecting cold air at high velocity into the furnace until the walls are cool. Results are obtained by comparison; the comparative heat-insulating properties, together with the relative conditions of the competing sidewalls at the conclusion of the test, determining whether or not the material under test is acceptable.—Chemical and Metallurgical Engineering.

* * *

BRICKLAYER PROBLEM MAY GET ATTENTION

There is a movement now on foot among various trade associations who are interested in the bricklayer question to get together in meeting and formulate definite plans for the promotion of bricklayers' schools. Nothing definite has been accomplished as yet, but many of the associations in the clay industry are considerably interested in this problem and it is possible that in the near future some definite steps will be taken toward the solution of the bricklayer problem thru the training of apprentices in schools. The Cleveland school has been very successful and will probably be used as a model after which to pattern others.

* * *

BRITISH POINT TO U. S. BRICK ROADS

Brick roads in the United States are coming in for a great deal of attention on the part of British clay products manufacturers. As recently announced in Brick and Clay Record, an association has been formed in England to promote the use of brick in pavings. Particular stress is laid on the long service which brick roads give in America and the fact that old and worn brick can be taken up and relaid and either turned over or carefully selected and the badly worn brick thrown out. If this is done, it will be found that seldom more than ten per cent. of new brick need to be purchased.

It will be interesting to know with what success the efforts of the British Paving Brick Association to introduce brick highways in England will meet.

Why Costs Run Low at Fiske & Co.

Author Bares Many Secrets About
Systems and Equipment Used by a
Small but Remarkably Efficient Factory

C. Forrest Tefft

Production Manager, Fiske & Co., Watsonstown, Pa.

Editor's Note—This, the concluding installment of the description of the Darlington, Pa., plant of Fiske & Co., continues from the point last described in the previous article. In last issue was described the interesting system of drying and burning in use at this plant. How the gases pass thru the dryer and the stack was the subject of the article when it was interrupted in last issue. The article commences in this issue with a description of the control equipment with reference to the gases passing thru the dryer.

At each fan there is a permanent thermometer that registers the temperature of the gases. These temperatures are taken every hour and recorded on the kiln fireman's daily report.

There is no real value in having the kiln fan temperature each hour except that it insures an hourly inspection of the equipment, but in the case of the dryer fan it is advantageous to get the reading hourly, because the dampers regulating the flow of gases thru the dryer pipes is set from this reading. At the inlet to the dryer stack where the moisture laden air leaves the dryer there is located a recording thermometer, from which the dampers to the stack are regulated. The reading from this thermometer is also recorded hourly.

The dampers used for regulating the draft on a kiln are shown in the illustration (Fig. 10). This clearly shows the method of construction from fire clay slabs and channel iron held together by tie rods. It also shows the differential block of half ton capacity used for regulating the height of damper. The fireman can have no excuse for a damper



Fig. 10. This View Shows Dampers for Two Kilns, the One Near the Upright Post at Left Is Not Clearly Shown. These Dampers Are Operated on Chain Blocks. Note Also Concrete Runways with Steel Channel for Wheeling Brick

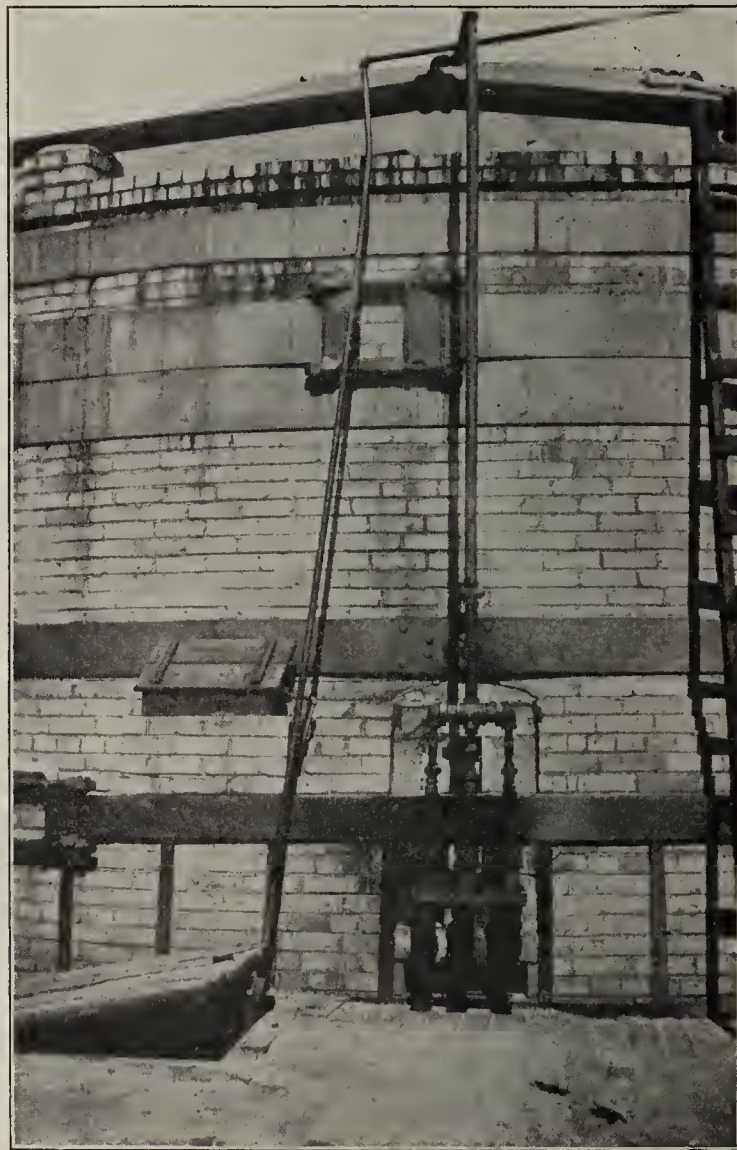


Fig. 11. This View of Exterior Kiln Wall Shows Location of Box Containing Draft Gage, Conduit Carrying Lead Wires from Thermo-Couple in Flue and Also the Cover to Manhole Which Allows Burner to Properly Care for Flue Couple. A Triple Gas Burner Is Also Shown

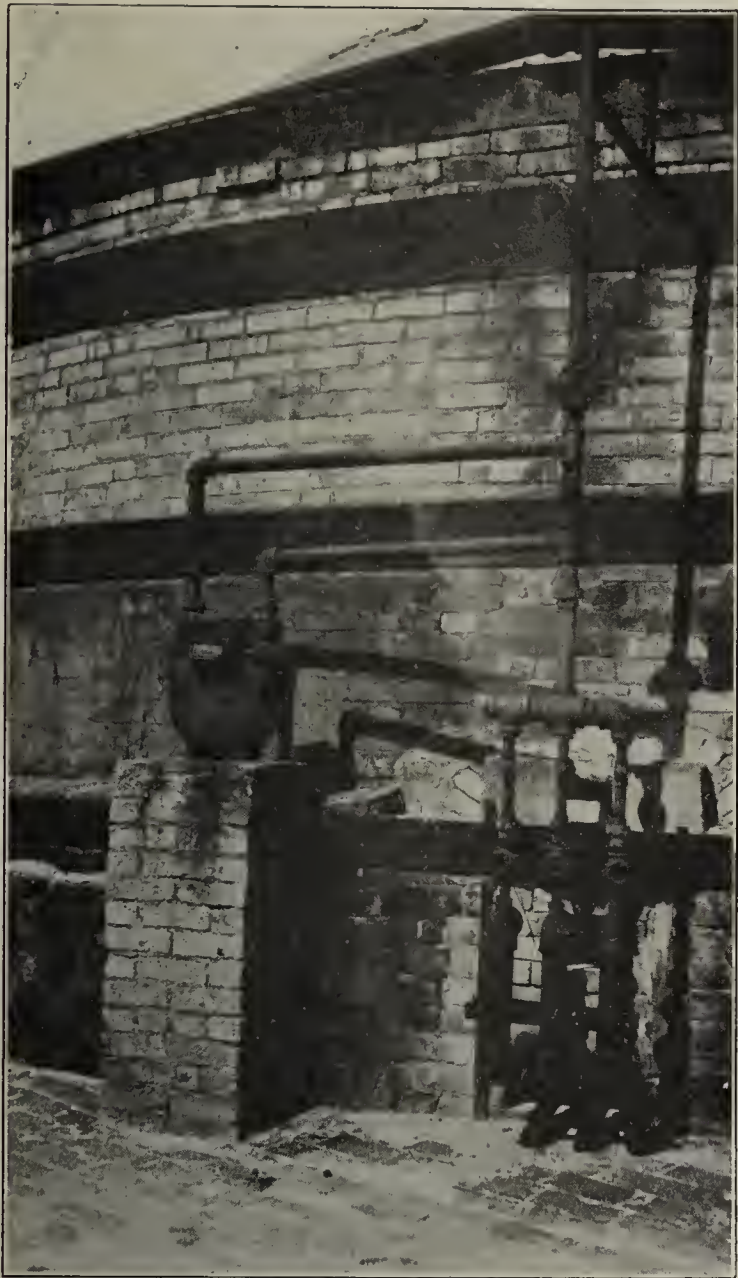


Fig. 12. This Close-Up View of a Kiln Fire-Box Showing a Triple Burner Also Shows a Gas Meter. By Multiplying the Gas Passing Thru This Meter for Fire-Box by the Number of Furnaces the Total Quantity of Gas Burned Is Obtained

being set wrong, because it is too hard to move. There is a definite understanding all over the plant that a damper chain block is never to be borrowed for other work.

Each kiln is equipped with a gas pressure gage and a draft gage. The fireman has a definite schedule for his gas pressure and draft and so, of course, he must have a gage to tell him whether the schedule is being followed.

Detail of Gas Burner

Fig. 11 shows a small view of one of the triple gas burners. A study of this picture will help in the description of it. The main pipe around the kiln is four inches in diameter and the vertical pipe leading from this and feeding the burner is $1\frac{1}{4}$ inch size. This pipe feeds into a two-inch diameter cross pipe having 3 three-quarter inch pipes leading from it.

A valve is set in each of these three-quarter inch lines so that one, two or three burners can be put into use. Just inside the fitting, with the opening showing clearly, there is located a plug that reduces the size of the aperture thru which the gas must pass to a one-eighth inch diameter hole. As the gas leaves this opening it, of course, expands and mixes with the air drawn into the burner thru the opening in the cross.

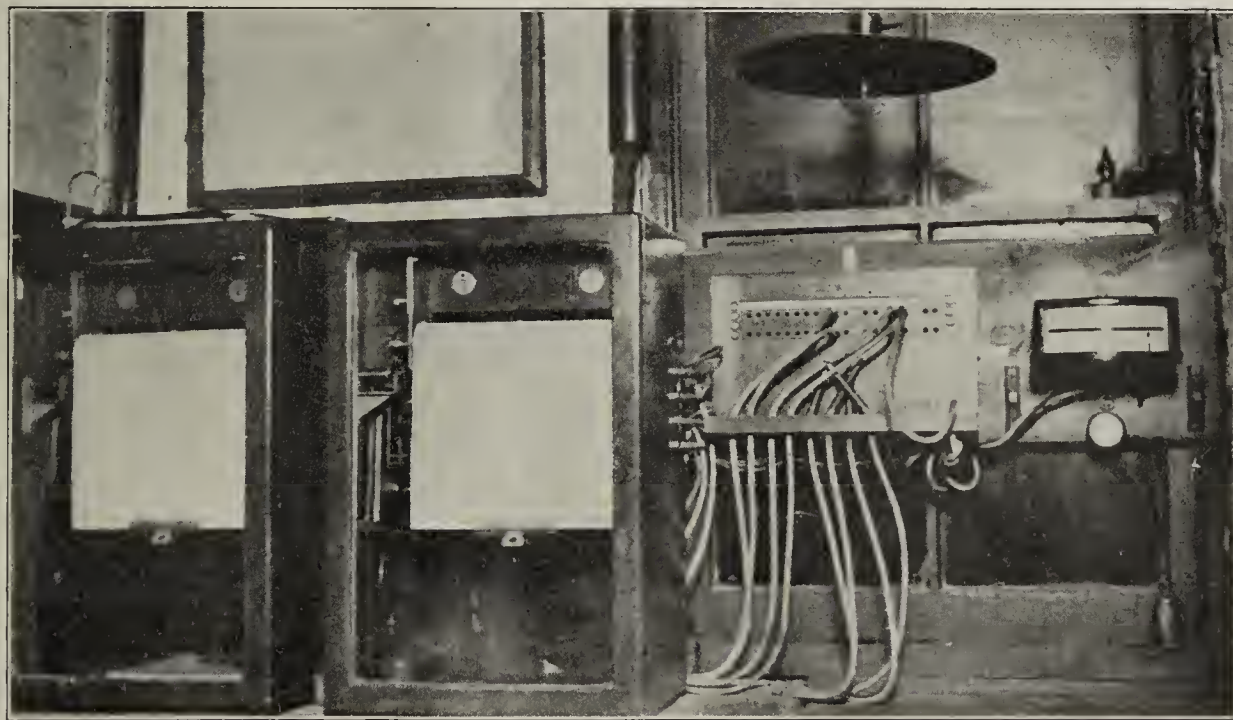
This mixture passes down the special two inch ell with bull nose inlet, where more air is admitted and mixed with the gas. The two inch diameter pipe seen in the picture does not extend all the way into the firebox, but is set about one inch into a rectangular fire clay block. A hole two inches in diameter thru this block forms the continuation of the burner. With this arrangement there is never any trouble caused by the burning off of the iron pipe.

The burner tips mentioned above are all carefully reamed to a definite size so that exactly the same amount of gas will pass thru each one when the pressure of gas is the same, and in this way the amount of heat delivered to a fire-box is just exactly the same as that delivered to every other fire-box. In order to accomplish this result the valves on each burner pipe in use are opened wide and the gas pressure on the four-inch line around the kiln is set to schedule. The schedule, of course, calls for one burner in each fire-box to start off a kiln. When the pressure required to keep the kiln up to the temperature schedule reaches five pounds the second burner is put into use and then later the third burner is put on.

In measuring the quantity of gas used on a kiln, use of the rule that exactly the same quantity of gas will pass thru a number of openings when the pressure on each is the same is taken advantage of. By metering the gas used on one fire-box and multiplying this quantity by the number of fire-boxes the total quantity used for that burned is obtained. Fig. 12 shows how this is done.



Fig. 13. The Frame Above the Pyrometer Recorders Shown in This Interior View of the Kiln Firemen's Instrument House Contains Under Glass the Curves and Burning Instructions. Draft Gages and Gas Line Pressure Gage Is Also Located in This House



Each kiln is equipped with two thermo-couples—one in the crown of the kiln over a fire-box and the other in the flue just outside of the kiln. A manhole on the outside of the flue allows the fireman to get down to change this couple, which is placed about one foot above the bottom of the flue. It is unusual to have a couple located directly over a fire-box, but since each of the fire-boxes is getting the same amount of fuel, therefore, the same amount of heat work is being done and it is believed that the temperature over a fire-box is more nearly indicative of what is going on in the kiln than a temperature measured in the top of the crown. Opinions on this, of course, will vary.

The couple located in the flue outside the kiln is not in accordance with general practice, but experience shows that this couple is really of more value in governing the burn than that in the kiln crown. It is a great aid to water-smoking and, in fact, in all stages of the burn. If the temperature of the gases leaving the kiln is known, a burner ought to have a pretty good idea of what has been done in the way of burning the brick—especially so if the draft from the kiln can be regulated independently of the weather.

The pyrometer equipment was installed by the Thwing Instrument Co. It consists of two recording clocks that will register the temperatures from eight couples at the same time and a wall indicator used for checking against the recorders and for obtaining temperatures that are not connected to the recorders. The writer understands that this system made use of the first cold end correction apparatus ever installed in a brick plant. It also has the single wire for carrying the negative side of all current from the couples. This is usually called the "common return" system.

Kiln Firemen's Instrument House

The instrument house for the burning control equipment is a small brick building located in the center of the kiln yard. This house contains: (1) The pyrometer instruments; (2) a pressure gage on the main gas line; (3) a barometer; (4) thermometer; (5) draft gages extended from both draft fans; (6) instructions and charts for burning schedule; (7) burners, tools, such as wrenches, screw driver, hammers, trowels, pliers, etc. An interior view of this house is shown in Fig. 13.

Furnace for Testing Couples

In the plant laboratory, located in the office building, there is a small electric furnace for testing thermo-couples. The standard couple to which the base metal couples are tested is a platinum-platinum-rhodium couple, but sometimes the



Fig. 14. When the Temperature of a Cooling Kiln Is Down to 800 Degrees the Burner Closes His Damper and Cooling Is Continued by Blowing Air Into the Kiln by Means of a Portable Fan. As Shown in Above Photo This Fan Is Mounted for Easy Moving

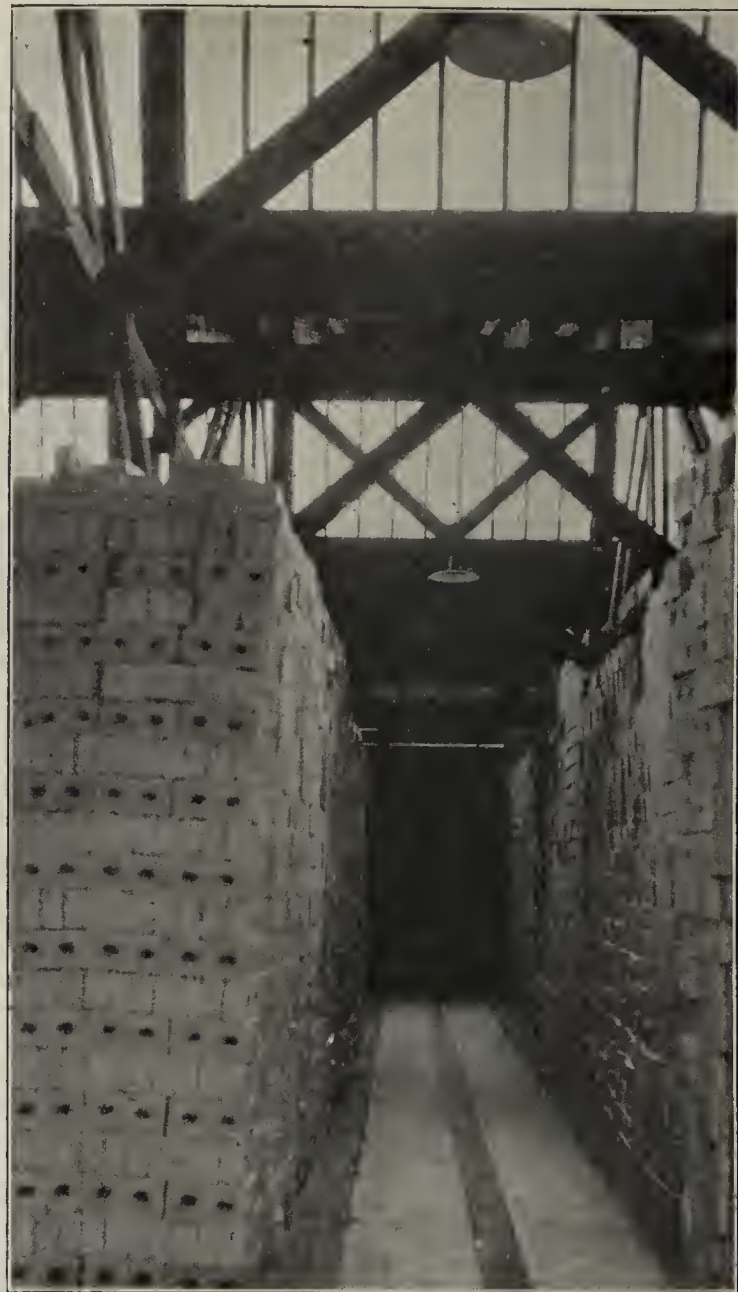


Fig. 15. An Aisle of the Well-Lighted Stock Shed. Note Concrete Runway with Steel Channel Wheeling Brick

known melting point of some common material is used as a check. This furnace is also sometimes used for small clay tests.

Method of Setting

When the setters go into a kiln they first fill in between the bag walls, then start a two brick ring just inside the bags. Inside this ring the brick are set in straight two brick benches that are tied together on the 22 and 23 courses. All the brick are set faced and 34 high except on the ring and between the bags.

Starting a Kiln

When the setters finish a kiln, the burner takes charge of it and, after setting his cones in the proper locations, he builds an eight inch door. For this purpose he has blocks made from the regular brick die, but cut in lengths equivalent to the width of four brick. He then "daubs" or plasters the door, as is standard practice everywhere, seals up the crown openings, sets his damper at the right height to get proper draft and lights one burner in each firebox.

When the fires are going, a second door is built just like the first one but two inches from it, the space between being filled with a mixture of mineral wool and sand. The advantage gained in taking this care in building up the doors can readily be seen when the burn is completed and the doorway opened again.

Burning Schedule

The burning schedule has been worked out as completely as it is possible to make a definite schedule, but all of the finishing off of a kiln cannot be done by following instructions. The burning foreman must use his judgment as to when a burn is completed. It is believed, however, that this man should have every guide possible to help him make his decisions as to how and when to finish the kiln. His judgment is, therefore, based on the following items: (1) Temperature at both top and bottom of kiln as recorded by the thermo-couples; (2) Cones; (3) Veritas rings; (4) Actual brick taken from the kiln. These are measured for size and examined for vitrification.

Kiln Cooling

The cooling of a kiln is done according to schedule by opening the various port holes in the kiln and by raising the damper leading to the draft system. When the temperature is down to 800 deg. F. the burner closes this damper and cooling is continued by blowing air into the kiln by means of a portable fan called the kiln cooling fan. Fig. 14 shows how this fan is mounted for easy moving from kiln to kiln.

All of the products, both rough texture and smooth face, are shaded. The actual figures covering A WHOLE YEAR'S RUN of the smooth face speckled brick show only four-tenths of one per cent. as resets and nine-tenths of one per cent. as broken brick even tho all brick are made with two large holes in them. These figures are based on a positive count of the brick going into the kiln and the actual count of the shader when the kiln is drawn. Anyone who has manufactured gray manganese brick will know from the above figures that a successful induced draft system is superior to the old natural draft burning systems.

Kiln and Stock Yard

The yard paving about the plant is probably second to none. There is not a foot of space in the kiln yard, stock sheds or open stock space that is not paved and there is also a system of concrete and steel runways all about the brick storage spaces. As it is difficult to get concrete to stand up under a wheelbarrow, a six inch channel iron is turned bottom side up so that the top of the channel is flush

with the top of the concrete and the flanges of the steel extend down into the cement. In order to keep the steel in its position permanently, round steel bars have been put thru holes in the flanges and extended out into the concrete about a foot on each side. These runways have been in service for over eight years and they are certainly proving satisfactory.

Storage Sheds

The plant has storage capacity under cover for approximately 3,500,000 brick and open yard space for 2,000,000 more. The latest addition to the storage sheds has a double saw tooth roof with several hundred window panes so that shading of brick can be done as easily inside the shed as in the open. Fig. 15 shows a view of one aisle in this shed.

Sample House

In one corner of the storage shed there has been built a dust proof house approximately ten feet square that is fitted up with stalls for the convenient storage of sample brick. These stalls are all marked with the kind of brick that they should contain and it is the yard foreman's duty to keep them filled up with good brick that can be used for samples. In this way a sample order can be filled at once without the work of a shader hunting thru the sheds for a particular shade of brick to send out as representative of the product. The sample house is equipped with paper and corrugated boxes for wrapping and packing the samples for shipment.

Repair Shop

The repair work is nearly all done by the company's own men in their own shop. This shop is equipped with a motor for driving a lathe, 3½ foot radial drill press, heavy 3 inch by 18 inch grinding wheels and power hack saw. The shop is also equipped with forge and anvil and many blacksmith tools, two machine work benches, one carpenter's bench, a portable keyseater, a stock room for many supplies and, of course, a complete line of hand tools.

Water Supply

The water comes from a 175 foot well and is pumped with an Ingersoll-Rand air lift. This has been in operation for about six years and, it is safe to say, the cost of repairs in



Fig. 16. A General View Showing Kilns and Gas Piping, Machine Room and Dryer Roofs, Dryer Stack and Stack for Discharge from Kiln Fan Shown Near Gable of Dryer Roof. The Small House to the Right and Below the Dryer Stack Contains Provisions for Cold End Couple Correction

all that time would not buy a box of good cigars. The air from the compressor of this equipment is piped all over the plant to each motor for blowing the dust from these machines.

Bath House

In an endeavor to make conditions more pleasant for their employes this company built a four shower bath house about two years ago and this has proven a real sound investment.



NEXT REFRACTORIES MEETING JUNE 14

The Refractories Manufacturers' Association has announced the date of its next meeting as June 14 and 15, 1923. The association will gather at French Lick Springs Hotel, French Lick, Ind., on these dates. French Lick is a popular resort and its golf grounds will probably share the interest of the delegates.

TREMENDOUS GROWTH OF U. S. INDUSTRY

"From 1849 to 1919 the total value of products manufactured in the United States rose from \$1,091 millions to nearly \$62½ billions, and the number of wage earners employed in manufacturing from 957,059 to 9,096,372. In the first 20 years of this century the personnel of manufacturing industries more than doubled, while the total value of manufactured products in 1919 was approximately 5½ times the total in 1899."—Bulletin National Industrial Conference Board.



AUTOMOBILE PRODUCTION BREAKS RECORD

Prosperity can only come when people have money and spend it. Therefore, when the automobile industry produces 318,424 passenger vehicles and 34,593 trucks in one month it is a fair indication of the country's business condition. These figures exceed by 64,006 cars and trucks the highest previous production records ever made in any one month. The record was made in March, this year.



Government Work on Drainage Brings Out Valuable Data

THE FOLLOWING REMARKS have been taken from the report of the Bureau of Public Roads, Dept. of Agriculture, and are interesting to the manufacturer of drain tile because they show the work which is being done by that Bureau in solving drainage problems.

"In the field of agricultural drainage the problems that may be studied with profit are many and varied. A few of these stand out because they affect so directly and obviously the pocketbook of the farmer. It is to this latter class that the bureau must confine itself.

"These basic projects, from their nature, must continue from year to year. Consider, for example, the matter of depth and spacing of tile drains. Shall the farmer of the fine sandy loams of North Carolina space his tile lines 100 feet or 135 feet apart? In this decision is involved a matter of some \$10 or \$15 per acre drained. Studies made in Pitt County, N. C., during the last two years have shown that the wider spacing is satisfactory. Plainly, however, this determination for the sandy soils of the Coastal Plain of North Carolina will not apply to the close clay soils of the Mississippi Delta country. The fact is that the opportunities for studies along this line are very numerous.

Tile Drains "Warm" Soil

"One of the advantages that has long been claimed for tile drains is that they "warm" the soil. By the use of the soil thermograph a continuous record was kept for one year beginning May 1, 1921, on a tile-drained tract and on an adjoining undrained tract, on the college farm at Athens, Ga. The results showed that at a depth of 18 inches below the surface the average temperature of the drained soil was nearly two degrees higher than that of undrained soil at the same depth. A similar record is now being kept at Athens and also on the experimental farm at Summerville, S. C., for a depth of 12 inches.

"The amount of run-off from agricultural land and the flow of water under various conditions afford a field for research on which many times the funds available for such work might be expended with profit. Run-off is the very basis of drainage design. The success or failure of the system hinges on the decision as to how much water must be carried and how it shall be carried.

"Other surface run-off data were collected thru the keeping of continuous stage readings on certain streams in Alabama

and North Carolina, the channels of which have been so gaged that the discharge at various stages is known. Continuous record of discharges from tile systems were kept in conjunction with records of rainfall and temperature on the college farm at Athens, Ga., on the state experimental farm at Summerville, S. C., and in Pitt County, N. C. These data will be invaluable in the future design of large and small systems to operate under similar conditions.

Durability of Tile Under Certain Soil Conditions Investigated

"The investigation of the durability of tile under soil conditions existing in certain counties in southwestern Minnesota was continued. The cooperation given by the Minnesota department of agriculture and the State department of drainage and waters has afforded opportunity to extend the scope of the work so as not only to aim at defining the areas where the use of concrete tile—as at present manufactured—is not advisable, but also to carry on research that it is hoped will lead to the commercial production of concrete tile that will be highly resistant to the action of soil alkalis. In the summer of 1921 a laboratory to be devoted to this work was established at the University of Minnesota. It is gratifying to be able to record here that this work has the approval and cooperation of the manufacturers of concrete tile in Minnesota. A marked improvement in the quality of commercial tile put out is already apparent.

Bureau's Extension Work

"Extension work in farm drainage is conducted in co-operation with the state extension services. In some states formal cooperation agreements are operative. In others, where the bureau has no drainage representative, each project is handled individually with the extension service. During the last fiscal year regular extension agreements were in effect in Alabama, Arkansas, Georgia, North Carolina, Tennessee, and West Virginia. The work consisted mostly of individual assistance given to farmers in connection with tile drainage and terracing layouts.

"Mention should be made of assistance rendered drainage districts whose plans have been submitted to the bureau of review. Suggestions relating to such plans have been instrumental in saving thousands of dollars to the affected land owners."

Accounting Simplified

G. W. Greenwood

Treasurer United Refractories Co., Dunbar, Pa.

CHAPTER XIV—CONCLUSION

ONE CANNOT STRESS too strongly the fact that this system is **not a stock system**. In every instance, even where two firms are engaged in the same line and are of about the same size, there are details which must be handled in different ways. One firm has reason to keep track of certain items of cost which the other has no occasion to keep separate.

The series has been written from the standpoint of the average small factory, but with suitable modifications the methods apply to any large, extensive and varied business.

Distributes Cost Over Nine Departments

For instance, there is a concern, not in the brick industry, which distributes its operating costs among nine different departments. For this purpose they have a voucher register with nine columns. The date, the name of the firm in whose favor it is drawn, the number and the amount of the voucher are inserted, and the amount then set down in one of the nine columns (assuming that the voucher is not divided). In another part of the voucher register the vouchers charged in the first column are again set down: the date, name, number and amount; and the amount is then carried to one of the secondary division columns. The second, third, up to the ninth column in the main section are similarly dealt with.

Save One-Half the Time Required

After investigation, writing up one month along the lines of the Operating Register system, with sheets for the Recapitulation of Expenses, it was the verdict of the manager that the adoption of such a system would save one-half the time now required in handling their vouchers, and that it would set forth the information more clearly and would simplify the making of quarterly and annual statements in addition to the regular monthly ones required.

Reference has repeatedly been made to an Accounts Payable Ledger. But practically the only difference between the voucher system and the ledger system is that instead of posting a credit, the voucher is placed in an open file: and instead of posting a debit, the voucher is removed to a closed file: the amounts of the vouchers in the open file at the close of the month being compared with the controlling account in the general ledger.

Register Will Simplify Work

There are some large firms which claim it is simpler to run an Accounts Payable Ledger than to keep track of loose vouchers. But, in any case, the Operating Register method should afford considerable simplification. For instance, an institution using this system holds its books open at the close of the month until it has written checks for nearly all bills incurred during the month. These checks are credited to the bank and charged directly to the various accounts. The few remaining invoices are credited to Accounts Payable. But there is no ledger. The checks written in subsequent months in payment of these accounts held over are charged to Accounts Payable and a notation made in the original entry showing the check number later given in payment. Thus the items in the ACCOUNTS PAYABLE column showing no check numbers should have as their total the amount of the Accounts Payable Control account in the General Ledger.

One brick company which also uses this plan assigns a number to each account payable, the number consisting of the page of the Operating Register, followed by the number of the invoice on the page. Thus invoice 1322 is the twenty-second invoice entered on page 13. When a check is given in payment, the amount is charged to Accounts Payable and this number is inserted in the space before the charge. Of course all invoices from one customer, unpaid at the close of any month, would be combined in one credit. Naturally, this scheme would not apply if there were a large number of invoices holding over for two or three months continually: but the examples cited indicate the diversity of applications of the Operating Register method and its flexibility.

Keeping Income Tax Information

One cannot tell from year to year what information is going to be required by income tax blanks: but so far as can be anticipated, information called for separately therein can, if desired, be carried separately in the Recapitulation of Expenses. In general, the information required by the blank can be filled in quickly and directly from the final Trial Balance figures and from the annual Profit and Loss Statement, which shows the inventories and the operating charges in detail.

One Controlling Often Does the Work

It has been shown how the operating charges are combined in a few, perhaps even in one, controlling account in the General Ledger, regardless of the number of different classifications. It has been shown how, without changing in any manner the entries in the General Ledger and in the Operating Register, one may take this list of operating charges and combine it with physical inventories, accrued liabilities, deferred charges, accrued credits, deferred credits, unadjusted invoices—in fact, any figures which affect the financial status of the concern at the close of the month but which either have not yet appeared on the books or which, having been entered, belong to a succeeding month,—and can prepare a monthly Profit and Loss statement together with a corresponding Financial Statement. In many firms, especially large ones desiring up-to-date accounting information, it is the practice to make adjusting entries in the General Ledger in order to achieve these results.

Handling Inventory Accounts

During the course of publication of this series, an inquiry was received as follows:

We keep track of our various Inventory Accounts, and have a separate account in our General Ledger for each of the following, which we would like to eliminate if there is any way to do it and to give us the same results with less work.

(Here follows a list of inventory accounts, including raw material mined and raw material purchased, together with other supplies and brick inventories.)

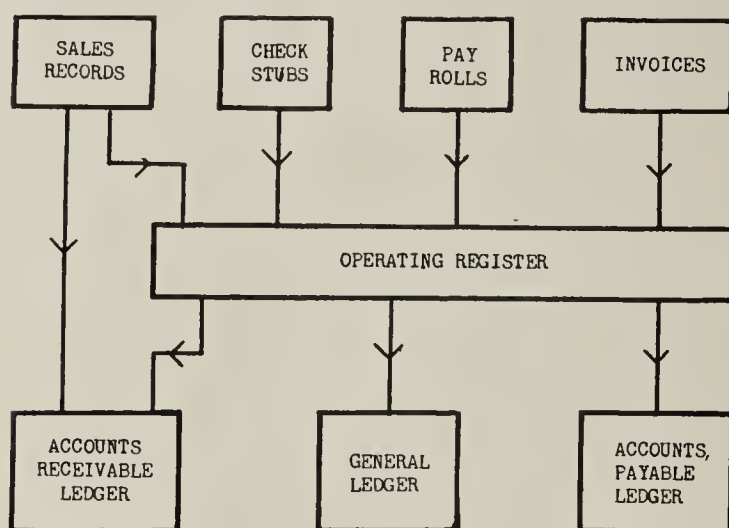
Once a month these accounts are adjusted to agree with the actual material on hand.

We do not like this way of handling these Inventory accounts and will be very glad to have your suggestions.

In response to this inquiry, there was supplied a copy of the manuscript of some of the chapters in this series which had not yet appeared. In consequence it was found possible to reduce the number of inventory accounts to but two—one consisting of the finished or semi-finished product, the other of all raw materials, supplies, and so forth—and to allow these two inventories to stand unchanged in the General Ledger from the first to the last of each year, at the same time giving the same amount of information as before.

System Not a Cost System

As has been stated more than once, this is a series of articles on Accounting—not on Cost Accounting. Cost Accounting begins where this series leaves off. But when one has



This Chart Shows the Simple and Easy Way in Which Entries Are Made When Using the System Described in This Series

set forth the operating expenses as outlined in the Monthly Profit and Loss Statement, he has laid the foundation for a most illuminating cost system along modern lines, where the actual charges are contrasted side by side with standards based on what these charges should be. Where these are out of line, an investigation follows to see if the standards are unreasonable or if there is an avoidable waste in some department. With these Profit and Loss sheets and with his auxiliary figures covering hours of operation, quantities of brick produced or materials consumed, the cost accountant works out his deviation from standards without further recourse to the records of the general bookkeeper: just as the chemist analyzes specimens far from the scene of their discovery, and the scientist develops the photographic plates far from the spot where the eclipse of the sun was observed. Some writers make the mistake of speaking of "costs," when they mean a distribution of expenses incurred as a result of operation, idleness, accidents, or of a generous mixture of all three. Of course, the general bookkeeper and the cost accountant may be, and often are, one and the same person, but that is no reason for confusing the two lines of work.

And now with regard to installing the system:

Where one already has a good system in use, begin writing up the records in an Operating Register but at the same time keep up the other system. Keep this up for a month, or possibly more, carrying on the two systems side by side. This will afford a direct comparison, and, so far as the writer's experience and observation have gone, the comparison has always been in favor of the Operating Register system. During the writing up of the Operating Register it will be found in general that there are short cuts which do not appear at the beginning, and by deferring the cutting loose from the old system—provided one does decide to cut loose—the Operating Register has seen one or more months of practical application before it is installed. Then, at the beginning of some subsequent month, the old system is dropped and the Operating Register system, not as an experiment but as a proven process, takes its place.

Can Install Any Time of Year

As originally worked out by the writer, the system was installed in the middle of a year. There were seven major distributions of accounts, "Repairs A" referred to repairs for one plant, "Repairs B" indicated repairs for another, "Office Expense C" was the office expense for a third plant, and so on, all these accounts being carried in the General Ledger. So far as possible charges to the different plants were written up in different invoice registers, distributing a charge to plant A, for example, according to the various classes of charges, repairs, supplies, raw material, and so forth. The totals of these columns were posted to the General Ledger. This method entailed additional work when a charge pertained to two or more plants, since it had to be written up piecemeal. But at the same time it did away with the necessity of rewriting the charges for a more detailed distribution along the lines already described.

Supplants 13 Books with One

But, having become satisfied that the proposed plan was feasible, the 13 books from which entries were made to the General Ledger were laid aside in favor of the one Operating Register, the various accounts in the General Ledger pertaining to plant "A" were transferred to a single "Operating Account A," the amounts in detail were entered in the first column of the Recapitulation of Expenses A sheet and headed "January-June," their total agreeing with the total of the General Ledger account. The "B," "C," and other accounts were similarly dealt with, and with but small changes the system is still in use. A brief description of the system was given in Brick and Clay Record in January, 1917.

Books on accounting frequently give diagrams showing how entries are to be made from one set of books to another, the lines and arrows forming a chart which would shame a diagram of the solar system (not including asteroids or periodic comets). We, therefore, close with a chart showing the simple and easy way in which entries are made in the series we have described.

This article ends the highly interesting series on Accounting Simplified which has been running in Brick and Clay Record since January. This series has aroused widespread interest because of the clear, concise and simple style in which the articles have been written.

The system described is an innovational one and was designed by the author, G. W. Greenwood, because he felt that the bookkeeping methods now in use involved the use of too much time, experience and knowledge for the ordinary business. Mr. Greenwood's system is eminently simple and can be installed and operated by anyone having even a limited knowledge of bookkeeping. No trained accountant is necessary.

Brick and Clay Record proposes to collect the Accounting Simplified articles in pamphlet form for the convenience of anyone who desires to possess the system complete. A nominal charge will be made to cover the cost of printing.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

BUREAU OF STANDARDS TO MAKE TESTS OF HOTEL WARE

NOTWITHSTANDING the fact that the United States Potters' Association has established a Fellowship in connection with the ceramic department of the United States Bureau of Standards at Washington, D. C., where particular problems are to be worked out that will prove of value to the generalware industry as a whole, the Department itself has been actively engaged for some years in a study of American earthenware and china bodies.

Some wonderful results have been recorded as a reward of this effort, but now the Department is going another step in its investigations of these wares.

Service tests of hotel china ware have been arranged for. Those tests made in the laboratories of the Department have had to do with other ceramic problems. These "service tests" will be used to check against records now on file with the Department.

Tests Under Way at Biltmore

An arrangement has been made by the Bureau of Standards to have service tests of hotel china made in several of the larger hotels in the United States, and the first of these is now under way in the Biltmore Hotel, New York. Samples of the plates tested by service in this hotel will be sent to the Bureau of Standards for laboratory examination, and large lots of the same ware will be put in service and examined from time to time in order to correlate the service given by the plates with the laboratory results.

Consider Standard Sizes

Representatives of the large hotel interests of the country met with the Vitreous China Division of the United States Potters' Association in New York in April, and at that time the question of standardization of items was considered. The list of standard sizes adopted may soon be made a matter of official record.

In this connection, a conference has been arranged by the Federal Specification Board's committee with others representing the pottery industry, hotel buyers and representatives of the Pullman Co. for the purpose of agreeing upon a final list.

A general list of shapes and sizes in both hotel china and glassware has been prepared by the Bureau of Standards, and this has met with the approval of those committees now representing the different angles of the trade. This list not only includes china shapes and sizes, but has to do with glassware—the allied line.

This list represents a rather large cut in numbers of sizes and shapes at the same time being quite definite and of

marked simplicity. It is this base that will be used in obtaining bids.

Drawings of all these items have been prepared and have been distributed for the inspection of members of the potters' association. This was done with a view to making certain that the items adopted as standard are made by practically all manufacturers of this type of hotel ware.

It is interesting to note in this connection that the pottery manufacturers are arranging a standard list of hotel ware in which only those articles are enumerated which are made by all potters for hotel and railroad dining car and railroad restaurant service. The list adopted by the potters' committee is quite similar and is expected to be adopted as standard, with very few exceptions.



THE FLORIDA CHINA CLAY CO.

The Florida China Clay Co., Inc., was organized and incorporated the first part of March at Leesburg, Fla., with a capital stock of \$100,000 and an authorized capital of \$500,000 to engage in the mining and refining of kaolin for the manufacture of pottery. This company is mining and producing at this time approximately 40 to 50 tons daily and will enlarge and equip its plant with the most up-to-date equipment. The officers of this company are: J. S. Morris, president and manager; L. A. Morris, secretary and treasurer, and A. H. Bourlay, vice-president.

This is a correction of an item appearing in the April 3 issue of Brick and Clay Record.



STRIKE IMMINENT IN ENGLAND

(By Special English Correspondent)

Despite the pottery strike, trade, employment and output in the industry in England continues at a slightly better level and the manufacturers are now confident that the worst is over. It was hoped, of course, that the wages dispute would have been settled by the end of last month. The dispute has now lasted about ten weeks and is likely to be protracted.

The potters are contending that wages paid in the pottery industry of Britain are still $2\frac{1}{2}$ times what they were in 1914. The operatives deny this. An offer has been made by one big Longton manufacturer to pay 100 per cent. on 1914 wages if the employe will revert to the counts, working conditions and hours obtaining in 1914. There is small chance of the offer being accepted.

The British Pottery Manufacturers' Federation has officially announced its intention of tendering 28 days' notice to terminate all engagements. Such notice affects some 60,000 operatives. The dispute has been reduced to very narrow limits by the employers' modified terms. An early resumption of negotiations between the Manufacturers' Federation and the four trade unions concerned is likely.

A few days ago the manufacturers amended their wage reduction demand to ten per cent. in gross wages and 15 per cent. in the sanitary fire clay section. Originally their de-

mand was for a 20 and 25 per cent. reduction respectively. They also have made concessions on two vital clauses one concerning the controversial "good from hand" as opposed to "good from oven" system of payment.

The present dispute is confined not so much to wages as it is to the "good-from-hand" versus "oven" system. The system in vogue now and on which wages are based is the "good-from-hand" one established during the war. The potters say it has been abused and results in much careless work involving loss and greater production costs. They lay claim to a "reassessment of ovens"—the calculation of the number of days for the purpose of placing an oven. In other words, an amendment of the "good-from-hand" agreement to protect them from careless workmanship is desired. But the operatives see in this move a return to the old "good-from-oven" system, and will have none of it, since, they say it would reintroduce the old method of payment on the basis of wares coming good from the oven and not from the hand of the operative (as now).

The busiest pottery firms in the past month have been those engaged in the export of general earthenware. Known in the trade as the "Big Five" these export houses are working steadily for the U. S. A. and other foreign markets. A big strike just now will seriously interfere with the activities of the "Big Five" abroad and might well result in the loss of many of the American general earthenware markets. The

principal sanitary ware makers are busy with "overseas" markets, particularly those of France, South America and the United States.

A feature of recent pottery activities in England has been the sudden return to demand of cheap grade goods from abroad. Usually the class of pottery wanted in other countries either is medium grade or best quality. The potters here say they can now compete with cheap foreign pottery ware if there is going to be a demand for it.

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BUILDING HOMES FOR EMPLOYEES

From 10 to 15 new homes will be built by the Chelsea China Co., of New Cumberland, W. Va., for occupancy by the employes of the concern. This building program by the company is necessitated on account of the marked scarcity of homes in New Cumberland.

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SEBRING BUILDING 4 DECORATING KILNS

Four additional decorating kilns are to be erected in the plant of the French China Co., at Sebring, Ohio. This improvement will necessitate the erection of an addition to the pottery. These additions are in line with the expansion program announced by Oliver H. Sebring, head of these interests early in the year.



Potters Talk to Harding About Tariff Investigation

THE United States Potters' Association has no objection whatever to an investigation of the industry by the Tariff Commission, but a protest has been lodged with the Commission against insinuations recently published that such a move would be opposed.

This information was made known recently to President Harding by a committee representing the association and composed of president George C. Mitchell, of the potters' association and head of the Pope-Gosser China Co., Coshocton, Ohio; first vice-president B. E. Salisbury, head of the Onondaga Pottery Co., Syracuse, N. Y., and T. A. McNicol, chairman of the executive committee of the potters' association and head of the T. A. McNicol Pottery Co., of East Liverpool.

Willing to Help in Tariff Investigation

"We assured the President," reads a statement issued following the conference with President Harding, "of our entire willingness to have such an investigation made, and have promised for the industry hearty and full cooperation with the United States Tariff Commission in any undertaking of this character. The committee questioned the advisability and usefulness of such inquiry at this time on account of the rapidly changing conditions in the American and foreign pottery centers, but assurance has been given the President that if such an investigation were undertaken, the industry would do all in its power to facilitate the work.

"The insinuations to which the American pottery industry has taken exception, especially the generalware branch of the trade, were contained in statements attributed to W. S. Culbertson, vice-chairman of the Tariff Commission, that he proposed to force an investigation of duties on pottery. The intimation was given in the statements attributed to Mr. Culbertson that such an investigation would be opposed by William Burgess, one of the members of the Commission, and who formerly was connected with the pottery industry."

It is no secret that a very close study is being made of the official Federal records of pottery importations, with reference

to volume and to values. It has been said by one who has been observing these records, that "if the volume is large and the value low, or the volume small and the value high, then there is something in the air that would bear rather close study."

Records of previous years disclose that whenever representatives of any department of the Federal Government sought information about the generalware branch of the American pottery industry, manufacturers aided instead of retarded the gaining of any such information sought.

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BUCKEYE TILE TO BUILD 7 KILN PLANT

The Buckeye Tile Co., which has recently been formed to operate at Chillicothe, Ohio, proposes to erect a seven kiln plant, and to be in position to fire the first kiln on or about August 1. The company has obtained a Delaware charter with a capital stock of \$250,000, and perhaps \$60,000 will be spent in plant construction. John C. Strayer, of York, Pa., is president of the corporation, and J. J. Carter, formerly with the Wheeling Tile Co., but more recently with Zanesville interests, will be the factory superintendent. E. S. Romine, of Wheeling, W. Va., is also actively associated with the new company.

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POTTERY INCORPORATED IN TEXAS

The Athens Pottery Co. has been incorporated at Ft. Worth, Tex., it is stated, with a capital of \$314,000 and with P. E. Miller, J. B. Miller and Paul Hable as the incorporators.

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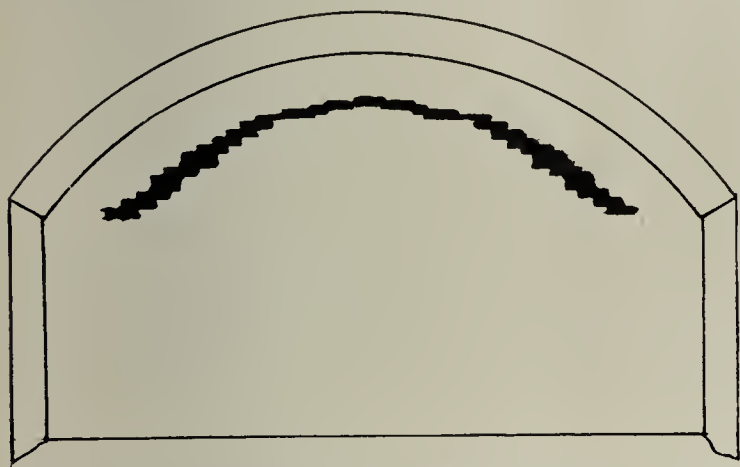
TO HANDLE COAL AUTOMATICALLY

Tiffany Enameled Brick Co., Momence, Ill., is now installing automatic coal handling machinery and coal storage bins. E. Olney Herman is manager of the company.

Management and Superintendence

A METHOD OF SHADING BRICK

"I saw in a recent issue that No. 1052, Ohio, would like information on Brick shading and good methods of sorting brick from the kiln. I would suggest one brick sorter in kiln



Take Off All of the Top Brick First; That Is, Those Shown in Black. Then Take off the Next Row or Layer All Across the Kiln. Then the Next and So on Down to the Bottom.

and one outside sorter. They should get results if sorter understands his business such as shading brick row for row, or as I show by sketch.

"Shade from flash walls over top and sides, then middle row for row, continuing this until reaching the bottom of the kiln. Do not put too many brick on wheelbarrow. Some use two wheelbarrows to make accurate shading."—Jay V. Lynn.

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INVENTS DRYER CAR SAFETY DEVICE

All manufacturers of clay products are familiar with the loss to their wares by frequent and disastrous jars on passing thru the dryer.

The picture shows a simple device for safe control of loaded cars or trucks in a dry kiln. It is the invention of Lloyd A. Brake of Crawfordsville, Ind., who has just filed application for letters patent.

The cut shows one entire double deck car "A" loaded with brick near the outlet door "D" of the kiln. Down grade indicated by the arrow "E." Portions of two other loaded cars are shown, of which "B" is behind car "A" and coupled

thereto, and the other car "C" in front has just been uncoupled and is being drawn from the dryer.

The control devices are the automatic coupler "F," the breaking or checking device "G" within the dryer, in center of track near the outlet door "D," and the operator's controlling lever "H" just outside the door "D."

The lower end of the control lever "H" is connected by a bar "K" with the oscillating lever "L" by which the front end of the flat bar "G" may be lowered to allow the car axle to pass freely over it, or raised to form an inclined plane to bring the moving train to a gradual and not a sudden stop.

A coupler "F" is attached to the front end of each car and is free to swing to and fro for coupling and uncoupling.

The front arm of the coupler has a beveled striker surface, which, on striking the rear of the car ahead, effects a coupling thereto; the lower end of the coupler on being lifted and dragged over the brake bar "G" effects the uncoupling.

As a car is being drawn, the lower end of the couple strikes the operator's lever in its position H' which sets the brake bar "G" in the position to bring the train to a gradual stop, by carrying it over to the position of "H".

When a car is to be drawn from the dryer the operator opens the door "D" and sets the outside lever in the position H' which lowers the brake bar "G" to the position G'. He then sets the train in motion, taking care of the outcoming car only, as the coupler of this car carries the lever H' over to the position "H" and thus automatically sets the brake "G" as an inclined plane to bring the moving train to a gradual stop.

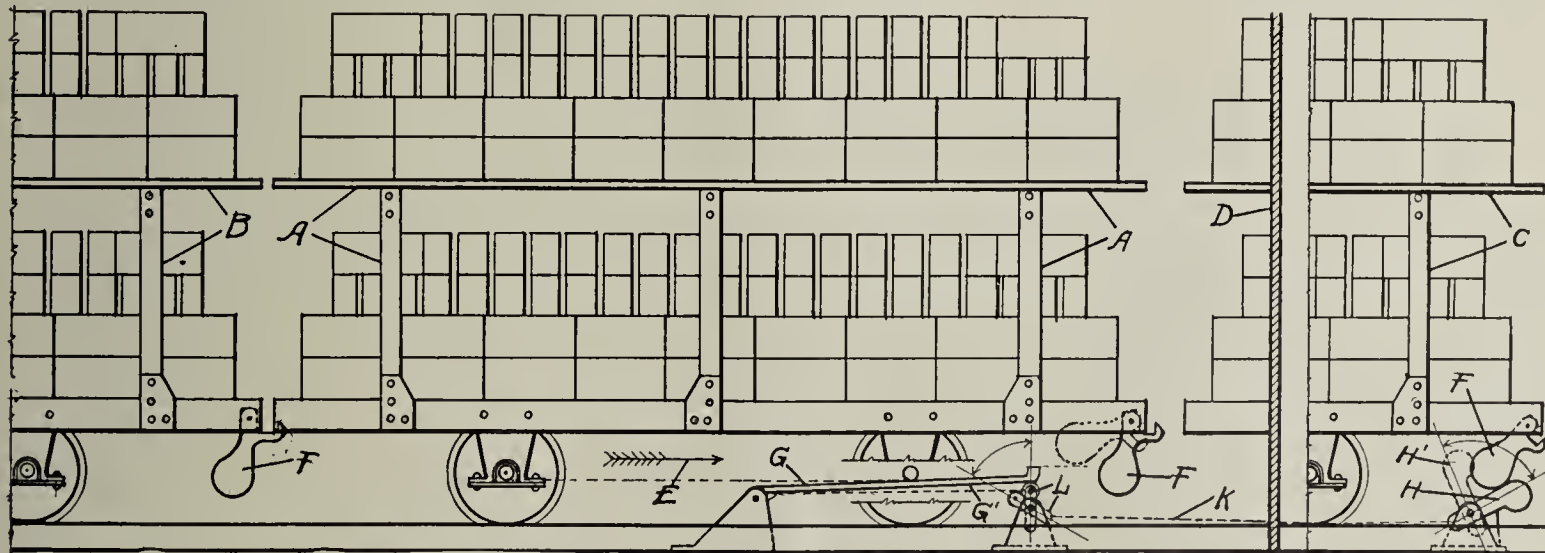
Several advantages are claimed for the device:

As the cars are fed in at the upper end of the dryer the automatic couplers insure an unbroken train which prevents frequent jamming with its well known damage to the wares and littering up of the floor of the dryer and checking of flues.

As the jars are practically eliminated, the brick may be stacked on the cars as shown, which allows 40 more brick per average car besides protecting the faces in all cases.

The cleaning out of the floor of the dryer and hot air flues is reduced to a minimum and the employees do not need to enter the hot dryer tunnels.

What makes it of great commercial value is the increased percentage of No. 1 ware.



Drawing Showing Coupling and Uncoupling Mechanism for Dryer Cars Invented by Indiana Man. Article Describes Operation in Detail



Material Being Dumped Out of Car. The General Arrangement of the Apparatus and the Large Capacity for Dumping Overburden Are Clearly Shown

OVERBURDEN REMOVED FOR 4 CENTS A YARD

The Adel (Ia.) Clay Products Co., known as the producer of high-grade hollow tile for agricultural buildings and general construction which are branded "Irontile," has developed a very efficient method of handling overburden.

The shale is covered with an overburden of sandy clay about 14 feet thick. Consequently one of the big problems is the removing and disposing of this waste material.

Until recently, teams were used for this work, but this was an expensive method, as well as unsatisfactory in other respects.

This work is now being economically accomplished by a suspension bridge arrangement which is shown in the accompanying illustrations.

The overburden is stripped by means of a three-fourth yard electric shovel, which places it in an "A" bottom dump car.

This car is electrically driven and runs over a standard track from the shovel to the point where the waste material is to be deposited. Here the track is suspended over a ravine by two 1½-inch Leschen Special Steel Wire Ropes that extend to a tower 40 feet high and securely guyed. These two ropes are each 640 feet long.

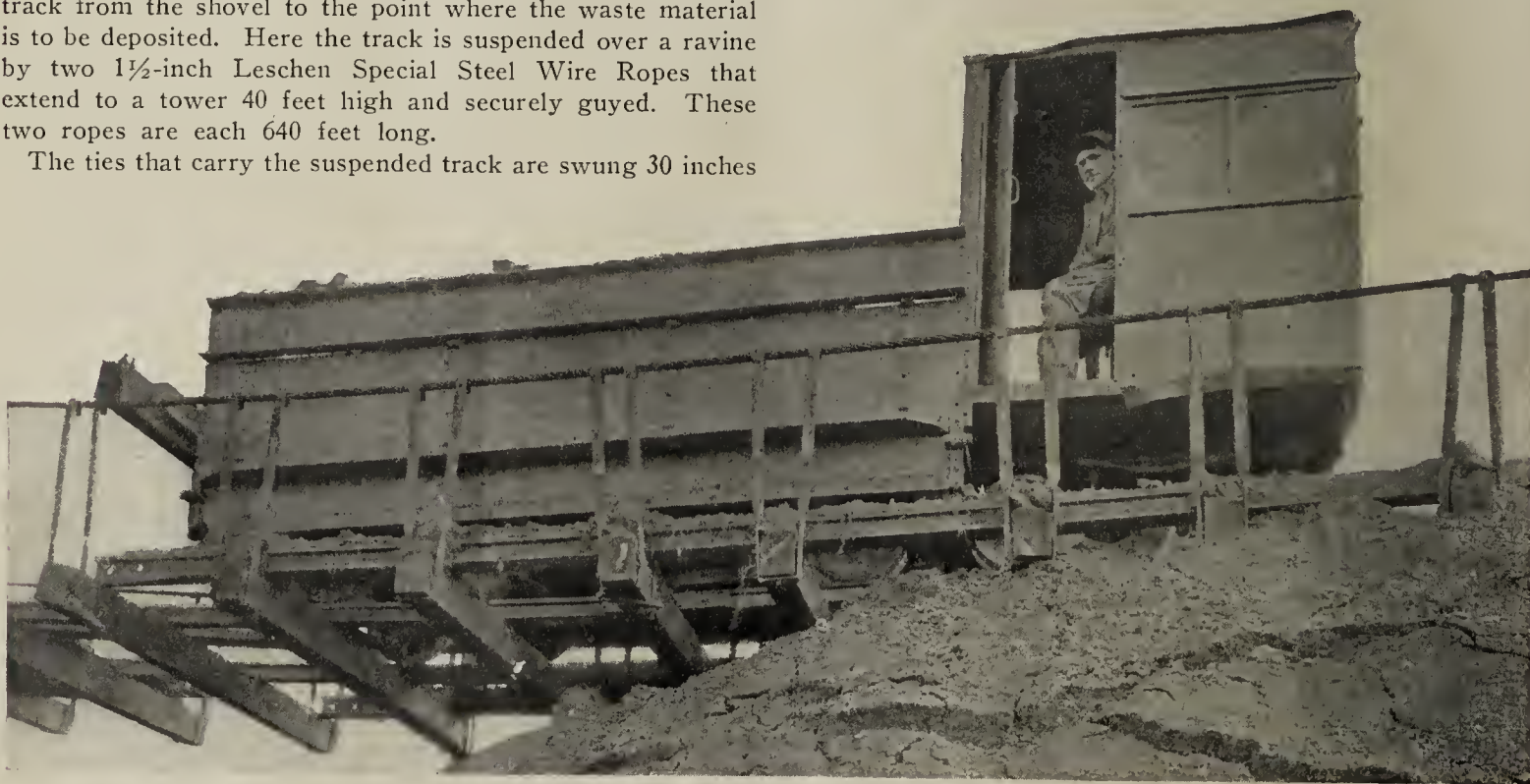
The ties that carry the suspended track are swung 30 inches

below the main cables by means of hangers. This construction keeps the center of gravity below the cables. A bumper across the cables stops the car at the proper dumping point.

The car weighs approximately 10,000 pounds and the weight of loads handled is about ten tons. Six hundred cubic yards of waste material a day can easily be disposed of with this equipment. One difficulty encountered in installing this system was the tightening of the main cables. This was overcome by devising a four-lug clamp for holding the turnbuckles and by using a bent tube for turning them.

When teams were employed for disposing of this overburden, the cost was about 30 cents per yard, but the cost of doing the work with the present equipment is only about four cents per yard.

After the overburden has been removed the company digs its shale with the aid of the very efficient and well known Adel shale planer.



Car at Bumper After Being Dumped. The Method of Suspending the Track from the Cables, the Construction of the Car and the Method of Fastening the Bumper to the Cables Can Clearly Be Seen

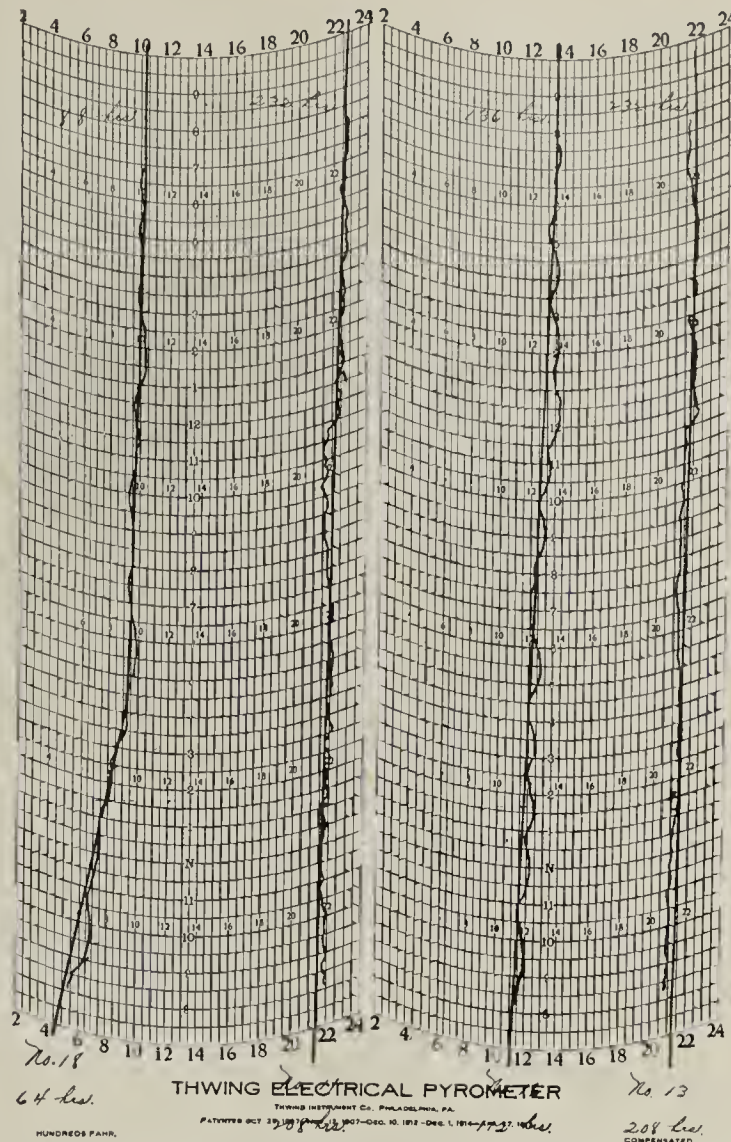


Steam Shovel Used to Remove Overburden at Adel Clay Products Co.

RAISING KILN TEMPERATURE EXACTLY AS DESIRED

John D. Martin, superintendent of the Straitsville Impervious Brick Co., New Straitsville, Ohio, has evolved a scheme for the more efficient use of pyrometers which simplifies extremely the work of the burners and insures duplication of results. The company operates 20 kilns, all of which are equipped with pyrometers. Since the clay used is quite sensitive an accurate burning schedule and temperature control is absolutely necessary. The company uses two multiple recorders, each recording four kilns, so that by use of a plug switch, eight kilns are recorded at one time.

To aid the burners in reaching the temperature of the kiln properly, Mr. Martin, each morning, draws a red line on the pyrometer chart indicating the advance in temperature which is desired, which the burners follow. The chart illustrated herewith will show how this works. The straight line is the line which Mr. Martin draws for the benefit of the burners. The crooked and wavering line following this straight line, is the temperature recorded by the pyrometer.



Pyrometer Chart Used by Straitsville Impervious Brick Co. to Guide the Burners in Firing Kilns

The night burners and day burners both follow Mr. Martin's line very closely and he is thus enabled to raise the heat at exactly the speed which he wants.



U. S. Government Specifications on All Types of Brick Work

1. **Brick.**—All brick shall be uniform in size, hard, and evenly burned, firm and compact in structure, and free from laminations, checks, or other defects.

2. The use of cement or sand-lime brick in lieu of hard-burned brick will not be allowed unless specifically set forth in the specification for the building.

3. Owing to the difficulty in obtaining common brick of a standard size for all localities, a reasonable variation from the figured thicknesses of brick walls will be permitted, but no change shall be made in the outside dimensions of the building. In locations where more than one size of brick can be obtained, the size used shall be such as will most nearly produce the required thicknesses when laid in the walls. The contractor shall be responsible for all measurements and shall adjust all other work to conform to the size of the brick used, and shop drawings for all work shall be prepared accordingly.

4. Figured thicknesses of brick walls will be considered equivalent to the following number of brick units based on the width of the brick used: 4-inch walls, one brick; 9-inch walls, two brick; 13-inch walls, three brick; 18-inch walls, four brick; 22-inch walls, five brick.

5. Common brick shall meet the following test for absorption: Three brick taken at random from each shipment delivered on the site shall be kept exposed in a dry room until in the opinion of the superintendent the brick have dried out. Three or four days should be a sufficient length

of time under ordinary conditions if the brick are so placed that all sides are exposed to the air. After the dry brick have been weighed they shall be two-thirds submerged in water for one hour, after which they shall be completely submerged for four hours. The brick shall then be removed from the water and weighed a second time after all surplus water has been wiped from their surfaces. The increase in weight of the wet brick over that of the dry brick shall not exceed 15 per cent. of the weight of the dry brick.

6. The samples submitted to the Supervising Architect for approval must conform to the above requirements.

7. All face brick shall be of such sizes that when laid in the required bond the headers in any course will be centered over the stretchers or vertical joints in the course below as required without any appreciable difference in the width of the horizontal and vertical joints. No face brick shall be submitted for approval that can not be laid in this manner. The approval of samples of face brick will not relieve the contractor from this requirement.

8. **Exterior Facing Brick.**—Where buildings are faced with stone or where the brickwork in areas is separated from the brick facing above grade by one or more courses of stone or granite, the face brick in areas shall be a light gray pressed brick of perfect manufacture and of a shade that will harmonize with the adjacent stonework.

9. Where the brick facing in the areas is not separated from the brick facing above grade, the building walls of

Dawn of Better

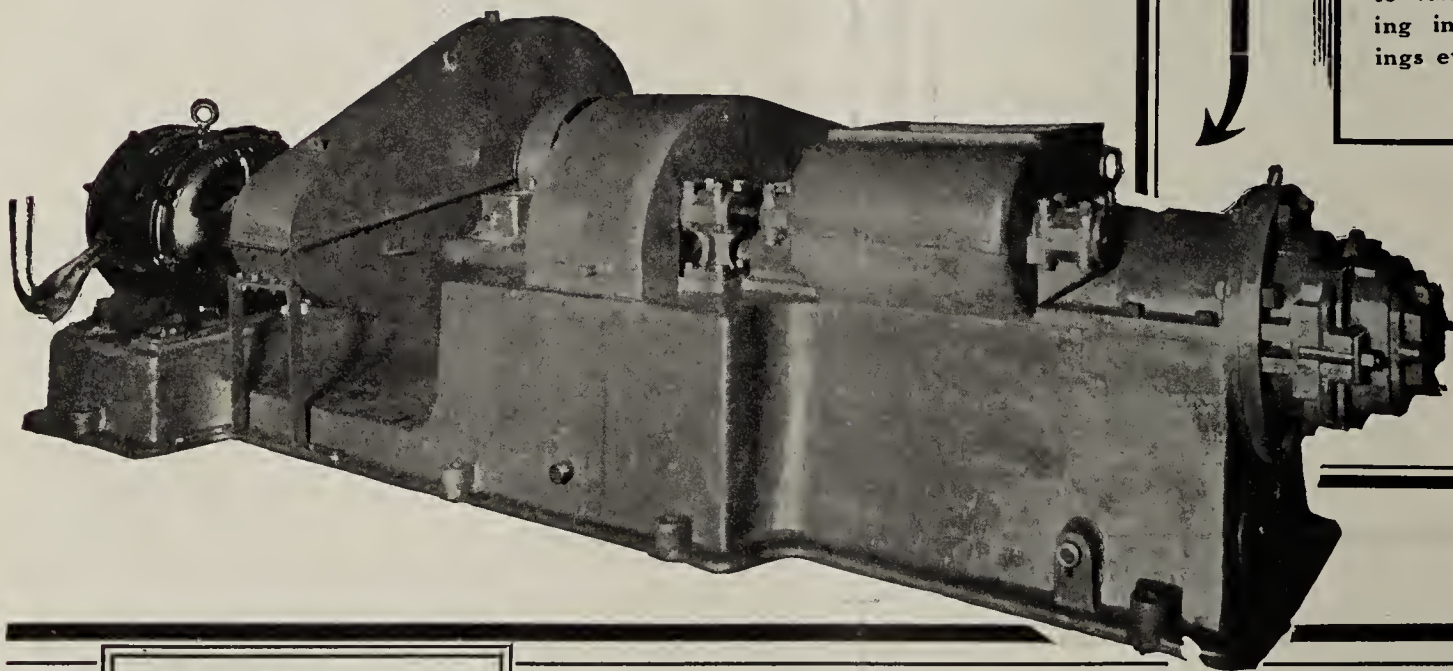


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MAKE THIS TEST

Our 425 Auger Machine at one plant turns out 6,000 brick per hour, while a nickel stands on edge on the barrel. Can your machine do the same? Make this test yourself. Repairs due to vibration are eating into your earnings every day.



IN
New

ENGINEERS
and
DESIGNERS
of
COMPLETE
CLAY PRODUCTS
PLANTS

International

Construction

Line Vibration--- The Root of All Evil

IE automobiles last six, seven, even ten years, while
hers last two or three, and repair and upkeep
keep their owners poor.

ven't you heard many autos go down the road rattling, squeaking,
ocking every foot of the way. You know their repairs are
e, and they are headed for the junk pile.

Truly, Vibration Is The Root Of All Evil

rnational Engineers recognize that vibration is equally an enemy
Machines, and in the design of our new 425-435-445 auger
s, put in a one-piece base that banishes Vibration with its
t costs and losses.

NATIONAL CLAY MACHINERY CO.

DAYTON, OHIO

Pittsburgh

**EQUIPMENT *for* MANUFACTURING
CLAY PRODUCTS—POTTERY
and GENERAL WARE**

areas shall be faced with brick like those of the superstructure and the remaining walls of areas shall be faced with light gray pressed brick of perfect manufacture.

10. Face brick shall extend four inches below steps and floors where abutting same.

11. All face brick shall be gaged to maintain uniform joints.

12. Face brick for the superstructure shall be one or more of the following types, as noted on the drawing:

13. **Type A.**—Type A face brick shall consist of dark-red common brick selected for quality and uniformity of shape and size. All exposed faces including headers shall be of the same texture and of fairly uniform color.

14. **Type B.**—Type B face brick shall be a light-colored pressed brick of a tone that will harmonize with light-colored limestone, sandstone, or terra cotta, and of smooth (not glossy) texture. The color shall be fairly uniform, angles sharp, and all edges and faces regular.

15. **Type C.**—Type C face brick shall be dark-red water-struck brick showing a variation of color on the face of each brick, and with headers slightly darker in tone than the stretchers. This type of brick is found in the "Harvard" brick, or brick of similar color and texture. Edges shall be fairly regular, and, if necessary, the brick shall be selected for color.

16. **Type D.**—Type D face brick shall be sand-struck brick or brick having a texture similar to that of a sand-struck brick. They shall be dark red in color, but a reasonable variation in color will be permitted. The surface texture shall be fairly uniform and the brick shall be of uniform shape and size.

17. **Type E.**—Type E face brick shall be brick of which all exposed faces have a rough texture similar to that of a stiff-mud, wire-cut face brick. The brick shall be of a light color that will harmonize with light-colored limestone, sandstone, or terra cotta. A reasonable variation in color will be permitted.

17a. **Type F.**—Type F brick shall be similar to type E, except that the color shall vary in tone from dark to medium shades of red.

18. **Type G.**—Type G face brick shall be brick of which all exposed faces have a rough texture similar to the texture produced on a stiff-mud brick by forcing the stiff clay mixture along a horizontal plane against vertical wires; the serrations on the stretcher faces to be generally perpendicular to the beds, and the serrations on the headers to be as nearly vertical as practicable. There shall be a considerable range in color, varying in tones from a dark brownish red to deep purple, the colors and tones to be evenly distributed in the walls. All colors must be permanent and produced without the use of artificial coloring matter.

19. **Type H.**—Type H face brick shall be similar to type G, except that the color shall vary in tone from a light to a dark buff.

20. **Type I.**—Type I face brick shall be similar to type G, except that the color shall vary in tone from a light to a dark gray.

21. **Shop Drawings.**—Shop drawings in triplicate, showing the width and location of joints and method of bonding of face brick for arches, pattern work, or any other special designs, and the jointing of special bonds shall be submitted as hereinbefore specified under "General Conditions."

22. **Parapets.**—The backs of parapet walls above the roof line shall be faced with common brick selected for hardness.

23. **Interior Face Brick—Mailing Vestibule.**—Where the exterior walls of the mailing vestibule are less than 12 inches thick, and are required to be faced on the inside with brick, the interior facing brick shall be the same as required for the exterior, and laid in similar bond.

24. Where the exterior walls of the mailing vestibule are 12 inches or more in thickness and are required to be faced on the inside with brick, the facing brick shall be a light-gray pressed brick of perfect manufacture.

25. **Brick Wainscoting.**—Where brick wainscots (other than enameled brick) are required, the facing shall be an impervious brick of a light-buff color and smooth exposed faces, regular edges, and sharp angles. Where special shapes, such as molded brick, bull-nose brick, miters, stops and so forth, are required, exposed faces shall be the same color and texture as other brick in the wainscoting.

26. **Enameled Brick Facing.**—Enameled brick, where required, shall be white and of uniform tone and quality. The glaze shall be hard and durable and have a dull or mat finish. All exposed surfaces shall be entirely covered by the glaze and shall be free from pits, blisters, cracks, checks, crazing or other blemishes. No brick with chipped or spalled faces

shall be used. All external angles, including window sills, and the jambs and heads of door and window openings, shall have 2-inch radius bull-nose brick with special miters, stops, and so forth, at angles. Wainscot caps shall be full brick headers unless otherwise shown.

27. **Interior Common Brick Facing.**—Common brickwork that is to be painted or that will be exposed in unfinished portions of the building shall be faced with whole brick that are fairly uniform in size and free from spalls or uneven faces. This requirement does not apply to those unfinished spaces which are inaccessible or which are so situated that they can not be utilized.

28. **Samples.**—Where considerable range in color is desired at least six samples showing the quality and various shades it is proposed to use shall be submitted. For all other types of face brick and for common brick at least two samples showing the variation in color and quality of brick proposed for use shall be submitted. All the samples shall be submitted to the Supervising Architect for approval as hereinbefore specified under "Samples" in the "General conditions."

29. **Special Brick.**—All special brick shall be of the quality and have exposed faces of the same color and texture as the adjoining brickwork of the same type.

30. Pattern brick shall be of the shapes and sizes necessary to faithfully reproduce the designs shown on the drawings.

31. Where soldier courses occur at corners, special brick approximately four inches square in cross section shall be provided.

32. Where external corners which are not right angles occur, special brick shall be provided the full height of the brickwork.

33. All brick required to be laid in curved surfaces of less than six feet radius shall be special radius brick that will produce a true surface of revolution.

34. All face brick for arches shall be specially molded so that all radial lines will be true, the joints of uniform width, and soffits regular.

35. Special brick, as hereinafter specified, shall be used in connection with running bond where headers do not show on the face of the wall.

36. **Joints.**—Flush joints shall have the mortar cut off flush with the face of the brick.

37. Raked joints shall have the mortar raked out uniformly three-eighths inch and left rough.

38. Recessed joints shall finish one-sixteenth inch back from the face of the brick and left rough or finished smooth, as noted on the drawings. The recess shall be the full width of the joint.

39. Weathered joints shall be struck with drip and finished smooth.

40. Struck joints may be with or without drip and finished smooth.

41. Blind joints shall be made without mortar, and the brick so joined shall be of the same shade and be closely fitted together.

42. Continuous joints in pattern brickwork shall form straight lines or true curves, and all joints shall follow the exact requirements of the design.

43. Joints of enameled brickwork shall be white or light colored and uniformly three-sixteenths inch thick.

44. Elsewhere the color and width of joints shall be as required by the drawings and the size of brick used.

45. The edges of the face brick shall be left clean.

46. **Face Brick Bond.**—Where the bond of face brick is indicated on the drawings, such bond shall apply to all face brick of that type not otherwise definitely shown or specified. Where no bond is shown or specified the face brick shall be laid common bond.

47. Where common bond is required every sixth course in height shall be a full brick header course laid so as to bond with the brick backing.

48. Where English bond, Flemish bond, or English cross bond is required, all headers in every sixth course in height shall be full brick headers, laid so as to bond with the brick backing.

49. Where running bond is required in connection with exterior or interior face brick every sixth course in height shall be a course of special square brick bonding with the brick backing, unless otherwise specified.

50. Where it is not practicable to use brick for bonding interior face brickwork metal ties shall be used. Where the backing is of brick or concrete the ties shall be placed in every sixth joint of the height of the face brick, and where the backing is of tile the metal ties shall be placed in every

horizontal joint of the tilework. Metal ties shall be spaced not over 12 inches apart horizontally, and shall be built in, except that they may be secured to concrete with heavy screws and lead sleeves. Around columns or piers the face brick shall be bonded each course at the corners.

51. Pattern brickwork showing headers shall be bonded by full headers every 12 inches each way; where no headers occur the facing shall be bonded to the backing with metal ties placed not more than 12 inches apart in any direction.

52. **Metal Ties.**—All metal ties shall be galvanized after forming. If wire is used it shall be at least one-eighth inch in diameter and looped or formed at each end to prevent slipping. Sheet metal ties shall be of No. 22 United States standard gage, at least three-quarters inch wide and crimped or corrugated.

53. All ties shall be at least six inches long, outside dimensions.

54. **Mortar.**—Where white or light-colored joints are required in brickwork, Class G mortar shall be used; the sand to be light colored, and if necessary color pigments shall be added to secure the required shade. Elsewhere all mortar for laying brickwork shall be Class B unless otherwise specified.

55. **Laying Brick.**—The brick shall be thoroly drenched with clean water immediately before being laid.

56. All exterior face brick, except when common bond is required, shall be laid from outside scaffolding.

57. Before commencing to lay the face brick on any elevation the work must be laid out so that the bond of all face brick shall be maintained plumb and the joints shall be of practically uniform width thruout. The bond shall be so laid out and adjusted that it will be continuous thru the plain wall surfaces. Where the character of the bond requires the use of pieces less than one-half brick in size they shall be placed symmetrically to the opening or to the center lines of the piers as may be directed, but no course shall terminate at a corner or at an opening with a piece less than one-half brick in size, except that where English bond is required the header courses may terminate at openings with pieces two inches wide.

58. The sizes of corresponding brick in the same course at each side of the jambs of openings, piers, or of pilasters shall be the same and the facing shall balance and be symmetrical. The work should be laid out generally from the center of each area of unbroken wall surface.

59. Any apparently unavoidable variations from the above which develop in laying out the work shall be referred promptly to the Supervising Architect for adjustment.

60. Where necessary to reduce the length of the whole-brick unit in any bond, a sufficient number of units shall be reduced in length so that the variation will be inconspicuous.

61. Face brick of arches shall be bonded to the brick backing where practicable; elsewhere they shall be anchored to the backing with metal ties at least once in every square foot of superficial area.

62. Every sixth course in the height of common brickwork shall be an overlapping header course extending thru the wall or to the facing. The headers in common brick shall overlap the headers in the facing brick.

63. Brick piers shall be bonded thruout each course.

64. Lay all brick in a full bed of plastic mortar, each brick to be shoved in place in such manner as to completely fill all joints, except that the vertical joints of inner courses in walls four brick thick and over may be grouted after each course the full thickness of the wall is laid.

65. Exposed brickwork at back of parapet, face brick of area walls, and other exposed brick on the exterior of the building not otherwise indicated or specified shall have weathered joints. Brickwork that is to be covered with stucco shall have the joints raked out three-eighths inch. The joints of all brickwork that is to be covered by other building material (except paint) and of brickwork in inaccessible or waste spaces shall be cut off flush. Elsewhere the joints of all exposed interior common brickwork, including that which is to be painted, shall be neatly struck.

66. All walls must be built uniformly one scaffold high at a time, be plumb, true to line, and have horizontal joint level.

67. The number of bats used in common brickwork shall not exceed ten per cent. of the number of full brick used, and no bats will be permitted as headers on either face of the wall unless otherwise specified or required by the design.

68. Brick backing for stonework shall be carried up so as to be not more than two stone courses below the top of the stone at any stage of the work. Brick backing for stone work shall be not less than four inches thick in any case.

69. Where walls are to be waterproofed by the membrane method the body of the wall shall be kept one-half

inch away from the waterproofing and this space filled with Class B mortar as each course is laid.

70. Where tile furring is required, strips of one-half inch mesh No. 20 gage galvanized wire netting shall be built four inches into the joints of brickwork so as to come at least in every alternate horizontal joint of the tile. The strips shall extend to the face of the furring, shall be not less than ten inches long, and shall be placed not over four inches apart, or continuous strips may be used. If so desired the strips may be placed to come in every horizontal joint of the furring, in which case there shall not be over an 18-inch space between the strips. In either case the strips shall be staggered over one another.

71. Where tile partitions abut walls not furred on both sides of the partitions and where stud partitions abut brick walls anchors shall be built in not over three feet apart in height.

72. Where concrete walls abut brick walls nine inches or less in thickness, or in such manner that it will be impracticable to leave pockets in the brickwork, anchors shall be built in not over three feet apart in height. Elsewhere where concrete walls abut brick walls pockets shall be left in the masonry every three feet in the height of the wall; pockets to be four inches deep the full width of the concrete wall and five brick courses high.

73. All anchors referred to above are hereinafter specified under "Plain iron and steel work."

74. Where concrete stairs, steps, or platforms are built against brick walls, brick ledges or corbels at least four inches wide shall be formed to support same. Similar ledges or corbels shall be built for the support of concrete floor slabs which abut brick walls and are not otherwise supported. In forming corbels each course of brick shall project not more than one inch beyond the edge of the next course below, and the top course shall be full brick headers.

75. At the bottoms of plaster cornices and at all ceiling lines where wood wall furring occurs the brickwork shall be corbeled out flush with the face of the furring.

76. Brickwork around the ends of wood joists or rafters shall be kept three-eighths inch away from sides and ends of same to allow the circulation of air.

77. All plates shall be set level in full beds of mortar, and all wood or steel framing, anchors, and so forth, shall be built in as the brickwork progresses.

78. Where steel columns are incased in brickwork the brick shall be bonded at corners in each course and laid to within one-half inch of the steel, the intervening space to be grouted full of mortar as the brick are laid.

79. Where pipes (except wall hydrants or down spouts discharging near grade) pass thru walls, pipe-sleeves, specified under "Plumbing," shall be built in as directed.

80. Lay brickwork on edge to form inside window sills in unfinished portions of basement, except where otherwise shown on the drawings.

81. At each point where joints in terra cotta base courses of balustrades and in terra cotta copings will occur over brickwork there shall be brick dowels approximately four inches square, formed by placing two brick on end, and building same into the masonry two courses with the tops projecting at least two inches above the bottom bed of terra cotta.

82. Counterflashings shall be built into joints of brickwork not less than three inches, as the cutting out of joints and placing the counterflashings afterwards will not be permitted.

83. **Protection for Damp Proofing.**—The brickwork laid outside of damp proofing will not be bonded to the walls, and where it projects beyond the face of the masonry above, the top surface of same shall be finished with class B mortar and beveled to form a wash.

84. **Protection for Waterproofing.**—Where walls are to be waterproofed by the membrane method the outer course of brick and all abutting step foundations, and so forth, shall be built to the full height required and the waterproofing applied to the inner side of the brickwork before the main walls are built. This outer course shall be built one inch away from the body of the wall and shall have four-inch by nine-inch buttresses on the outside at points not over eight feet from corners nor more than eight feet apart. When the top of the lining projects beyond the face of the masonry above the top surface of same it shall be finished with class B mortar and beveled to form a wash after the foundation walls have been built.

85. **Wall Plugs, and so forth.**—Where wood finish, grounds, furring, etc., are required to be fastened to masonry, build in metal wall plugs not over 18 inches apart to receive the nails, and so forth. Expansion bolts, especially prepared

(Continued on page 894)

Questions and Answers

BURNING COLORED TILE

1,064, Australia.—*We have been endeavoring to produce various colored tiles by means of a reducing atmosphere in the kiln. We have come to the conclusion that this would not be practical with the kilns in their present state. The reduced state was produced by adding at first slack coal and then oil, thru certain crown opening (feeding from the fire boxes was not found sufficient to maintain the reducing atmosphere, particularly when the lower temperatures of 700 degrees C. were reached). By testing the gases periodically from various parts of the kiln, the amount of fuel added was regulated so that a certain degree of reduction was maintained.*

The whole of the ware (tiles mainly) was in the reduced state—gray to black—down to 600 degrees C., but below that reoxidation gradually took place with the result that on drawing all of the tiles were red to brown.

Owing to the leaky nature of the kiln, particularly thru the foundations, a relatively enormous amount of fuel was required, with the result that the process was unduly prolonged. Even tho every apparent opening was sealed after ceasing to feed from the top, the coke residue from the coal gradually burned out.

We propose now to insulate the best of the kilns with a view to making them reasonably air tight. To do this we propose using infusorial earth and three-inch hollow ware. The chief difficulty is in connection with the flues which are built straight on to a clayey deposit and simply cemented together with daub.

I believe colored tiles are made extensively in America. What is the general method of procedure, type of kiln used, and what are the conditions and precautions taken to make the kiln air tight?

Another matter which is causing trouble here is the problem of obtaining white fired body from the local kaolin deposit, which is of almost unlimited extent. The general physical and chemical properties compared favorably with the best English china clays except in color.

The local material and in fact all of the Victoria china clays suffer from the same defect, burn to a light cream or blue, according to conditions. The color is only very faint, but is clearly discernible when a pure white body is compared with it. The trouble has been found by two chemists to be due to the presence of both iron and titanium. The sum total of the two oxides is very small and the coloration is obtained only when both are present.

Numerous methods have been attempted to date with a view to overcoming the above defect. For instance, addition of materials to complement the colors, electro-osmosis and levigation, but without much success from a practical point of view.

In answer to the first part of the problem, E. P. Ogden, Cer. Eng. of the U. S. Bureau of Mines, at Columbus, Ohio, gives the following information:

"It seems that the difficulty this reader is having with his tile is due to the fact that he really does not get them flashed at all. If they were flashed, as we understand the term, the color would be so permanent that no amount of re-oxidation during the cooling process would restore the red color. He may not be getting a proper flash due to one of several conditions, and of course, we can only suggest what these may be. It occurs to us that possibly he is not burning his ware to a maturing temperature high enough to render the iron-bearing minerals sensitive to reducing conditions. His ware may take a sufficient degree of hardness before such

temperature is reached, in which case the flashing process would really make no permanent change in the color of his ware. On the other hand, he may not appreciate the fact that the flashing should be done at the maximum temperature which he attains in the regular firing of his ware. He may be (and we infer this from his letter) making a practice of allowing his kiln to cool partly down before he floods the kiln with the reducing gases. In this event, the iron-bearing minerals would have passed thru their sensitive condition during cooling, and would have attained a more or less inert condition.

"Still another possibility is that his clay does not contain ingredients (impurities) that render it easily flashed. We would suggest that he try adding small quantities, say two or three per cent. of finely ground iron oxide or commercial iron ore; also that he try small additions of powdered manganese oxide, for instance, one to two per cent. This may enable him to get a satisfactory dark color.

"In the flashing process, as carried on in America, it is not considered necessary to maintain reducing conditions in the kiln after the temperature has cooled below 600 or 700 degrees C. As previously stated, the time to flash is when the kiln is at its maximum temperature. We know of instances where flashing is being done successfully in kilns that are not in any sense tight. During the flashing process a slight pressure is built up in the kilns and the reducing gases are blown out at various cracks in the crown and side walls of the kiln.

"As to his inquiry about his white burning clay, we can offer no helpful suggestion. The difficulty that he speaks of is quite a common one, and so far as we are informed, has not been successfully dealt with as yet."

The Dings Magnetic Separator Co. furnished the following data for the second part of the problem:

The circumstances your correspondent points out in connection with the discoloration of his clay are encountered very frequently, and in fact all clays without exception almost, can be benefitted to a greater or less degree by the application of magnetic separation.

As a rule, the iron, whether in the form of magnetite or oxide, is readily extracted, and the titanium, existing as ilmenite likewise is susceptible; but in that the degree of magnetic susceptibility varies, it is always desirable to submit a sample of the clay, usually about five pounds, for preliminary test.

There is no charge for this work, and after an examination, we can consciously and more intelligently recommend the best type of separator for the work.

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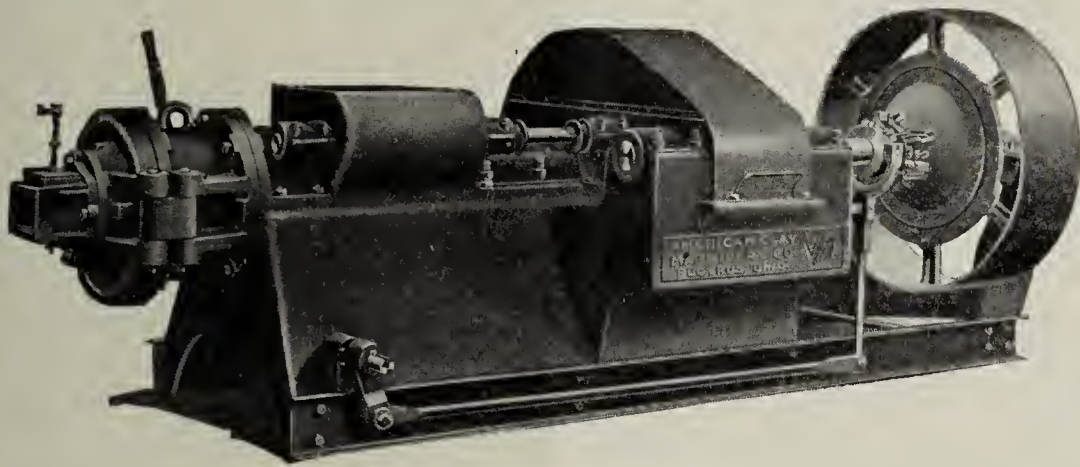
COAL PRICES TOO HIGH IN ALABAMA

Practically all of the clay products factories of the Birmingham, Ala., district, including brick, hollow and drain tile, sewer pipes, silo blocks and other manufactures of clay products are operating on full time. The only hindrance the clay products manufacturers are now experiencing over last year's operation is the rise in the price of coal. One clay manufacturer said: "We are now paying 60 per cent. more for coal than we were paying at this time last year." When asked the cause of this he said that about 50 per cent. of it was due to the rise in the miners' wages recently, and the other 50 per cent. was going to the coal mine operators as profits.



BRADFORD REDS

THE BRADFORD BRICK CO.



American No. 290 Augur Machine

The Bradford Brick & Tile Co. is one of the best and most carefully operated plants in the world. They make the famous Bradford Brick.

When the plant was remodeled they bought Four American No. 290 Augur brick machines.

Three of these machines were put into operation and the fourth was kept ready for an emergency if anything went wrong.

In several years of continuous operation at capacity *"nothing has gone wrong"* with any of the 290 machines and Mr. Hanley, of the Bradford Co., says he thinks he *"might as well sell that extra emergency machine."*

The Three No. 290 machines are handling all the clay delivered to them without trouble or delay.

The Bradford plant is also using three of the American 384 Grinders and three of the American No. 302 Pug Mills.

THE HADFIELD-PENFIELD STEEL CO.

BUCYRUS, OHIO

Formerly The American Clay Mchy. Co.

Bradford, Pa., June 22.

The above ad is in accordance with the facts. Would be glad to have you use our name in this connection.

THE BRADFORD BRICK CO.

This Haigh Continuous Kiln is operating at the plant of The Lehigh Brick Works, Allentown, Pa.



**50,000 Bricks
Daily from this Kiln
with less than
1 % Salmon**

*"Haigh Kilns are Never Found
on an Unsuccessful Yard."*

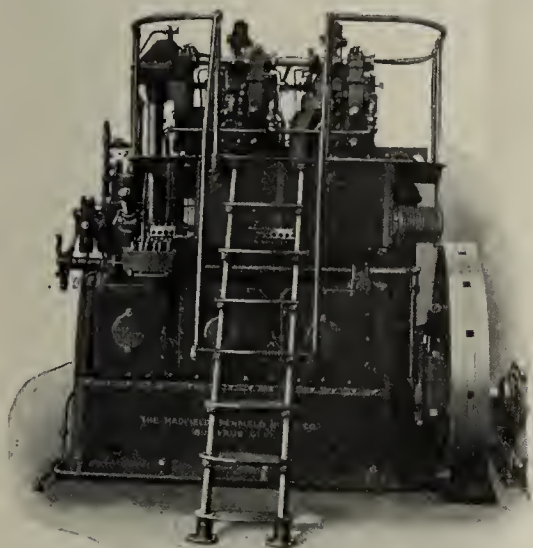
The Lehigh Brick Works is not only making a record of LESS THAN ONE PER CENT. OF SALMON, with their Haigh Continuous Kiln, but they are SAVING HALF THE FUEL USED IN THE OLD TYPE KILNS. And the brick are burned with half the kiln labor.

Whether you put this saving in your bank account or give it to your customer it is wise and progressive manufacturing to look into the possibilities of the Haigh Kiln. Ask for a list of users of Haigh Kilns. They prosper and Profit by its use. So can You.

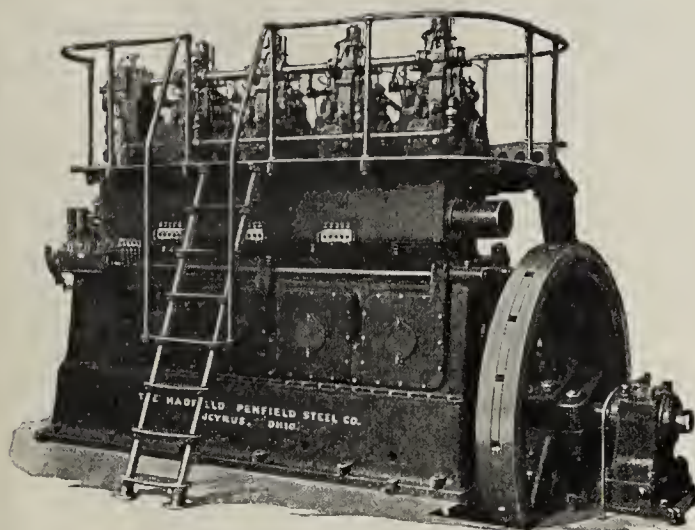
The HADFIELD-PENFIELD STEEL CO.
BUCYRUS, OHIO

Clay Plant Power From Fuel Oil

You can use the cheapest grade of fuel oil in a Standard Diesel Engine and save 75 to 90 per cent. of your power cost over the operating cost of a steam plant using coal.



100 HORSE POWER ENGINE



200 HORSE POWER ENGINE

One car of fuel oil in a Standard Diesel Engine will produce the same amount of power as Eleven cars of coal—and no coal to shovel in and ashes to haul out.

The Hadfield-Penfield Steel Co., Bucyrus, Ohio

AMERICAN GASOLINE LOCOMOTIVE

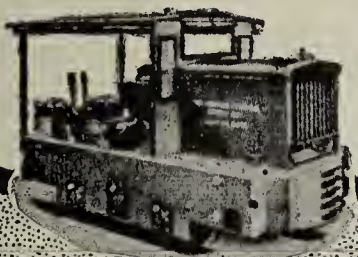
An Ideal Machine to Produce Continuous Haulage at Minimum Cost

If you have haulage work to do, let the Gas-O-Motive do it. The engine is so simple in construction, so ruggedly built, that it can go through the severest service—service that would put other apparatus out of commission—and come out ready for the next job. "Gas-O-Motives" rarely visit the repair shop.

If you have a haulage problem send us your name and address.

"Over a 2,000 foot grade, ranging from 5 to 7 per cent, the American Gasoline Locomotive hauls two cars of 2½ yard capacity each, and does it constantly. It works perfectly." Okmulgee Brick Co., Okmulgee, Okla.

THE HADFIELD-PENFIELD STEEL CO.
BUCYRUS, OHIO



Manganese Steel Wearing Parts Save Money

MANGANESE
THE FIRST
ERA
STILL LEADS IN QUALITY
STEEL

THE HADFIELD-PENFIELD STEEL COMPANY
BUCYRUS, OHIO

Clay Plant Repairs are saved with "Era" Manganese Steel Scraper and Muller Plates, Pug and Auger Knives, Gears and Pinions and any other parts where there is excessive wear. We have pattern for all standard parts. Demand "Era" brand. Backed by years of tried service. Tough, hard, wear-ever. Saves and Slaves for Clay Workers.



DRIVING PINION



KNIFE



BEVEL PINION



"ERA" brand Manganese can be secured only from The Hadfield-Penfield Steel Co., Bucyrus, Ohio.



Dryer, Transfer and Clay Cars,
with Flexible Bearings.
Switches, Turntables and Track.

THE CHASE FOUNDRY & MFG. CO.
COLUMBUS, OHIO

CHASE

WOULD YOU LIKE TO MAKE BETTER BRICK ?

USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

IF YOU ARE TROUBLED WITH SCUMMING, WRITE US TODAY FOR CIRCULAR.

THE
ROESSLER & HASSLACHER
CHEMICAL CO.,
NEW YORK

CHICAGO
BOSTON
PHILADELPHIA

TRENTON
NEW ORLEANS
PITTSBURGH

KANSAS CITY
CLEVELAND
SAN FRANCISCO

Drawn from the Kilns

Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing

MULFORD MADE SALES MANAGER

L. M. Mulford has been made sales manager of the Central Refractories Co., of Columbus, Ohio, which operates several plants in the Hocking Valley region of Ohio and in Western Pennsylvania.

HERMES GOES TO NICHOLSON

N. Hermes, who has for the past 7½ years been superintendent of the Muskogee (Okla.) Vittrified Brick Co., has accepted a position as general superintendent for the Nicholson Clay Products Co., of 818 Commerce Building, Kansas City, Mo. Mr. Hermes has general supervision of all their plants which are located in Oklahoma, Kansas, Missouri and Ohio. These plants manufacture tile, face brick of all kinds, common brick and pavers.

R. D. HERBERT HEADS ROTARIANS

R. D. Herbert, vice-president, W. G. Bush & Co., brick manufacturers, and T. L. Herbert & Sons, building supply dealers, both at Nashville, Tenn., was elected president of the Rotary Club on April 27.

Previous to his election to the presidency, he was a member of the board of directors of this club. Mr. Herbert has also been very generous in his support of other club activities, being a member of the Commercial Club, two golf clubs, and so forth.

PROMINENT FIRE BRICK OFFICIAL DIES

A pioneer in the fire brick industry of Missouri, J. A. Glandon, passed away May 1 at his home in Mexico, Mo. Mr. Glandon at the time of his death was senior vice-president of the A. P. Green Fire Brick Co., of Mexico. He had been in the fire brick business, however, for many years, as he organized the original Mexico Fire Brick Co., which later sold out to the present company.

Mr. Glandon was known to many clay products manufacturers in various parts of the country because of his extensive travels in selling the fire brick produced at Mexico.

J. F. REYNOLDS LEAVES I. L. STILES

After 25 years' connection with the I. L. Stiles & Son Brick Co., of North Haven, Conn., as general manager and director, J. F. Reynolds has severed his connection with that company. Mr. Reynolds was also general manager and director of the North Haven Brick Co. He will give up both of these positions and direct his entire attention to the Stiles & Reynolds Brick Co.

The I. L. Stiles & Son Brick Co. announces that D. B. Andrews has been elected vice-president and general manager of that company, the North Haven Brick Co., and the Stiles & Hart Co. He will also be president of the Bridge-water Brick Co.

CLAY INDUSTRY LOSES O. A. WHITE

Oscar A. White was born at Salamonina, Jay County, Ind., November 21, 1860, and died at Plymouth, Ohio, April 22, 1923. He graduated from Lebanon (Ohio) College in 1879, and was principal of Ridgeville (Ind.) High School for several years.

ROBINSON'S CLAY MACHINERY

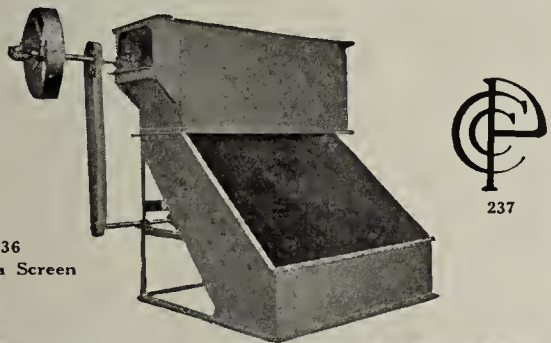
includes—

Kiln Bands Dryer Cars
Screens Pallets
Steel Rails and Portable
Track
Brick and Tile Machinery
Rock and Shale Crushers
Wire Rope—in fact, every-
thing for the clay plant.

Ask for our catalog and prices.

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
918-920 Behan St., N. S.
Factory and General Office PITTSBURGH, PA.



No. 36
Rota-Vibra Screen

OLD BEN

FRANKLIN COUNTY, ILLINOIS

COAL

Exceptionally Adapted for Manufacturing
Clay Products of Every Kind

Annual Capacity of Mines
12,000,000 Tons

C. B. & Q., C. & E. I., Ill. Central
and Missouri Pacific Connections

Sold under trade names

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Produced and Shipped By

OLD BEN COAL CORPORATION

18th Floor, Illinois Merchants Bank Building
N. W. Cor. Jackson Blvd. and So. Clark St.
CHICAGO, ILL.

EASTON CARS



STANDARD ROCKER DUMP CAR

Main Office and Works:
30 Holley St., - Easton, Pa.

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EASTON CAR & CONST'N CO.



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SAN FRANCISCO

MORSE Silent Chain Drives are 98.6% efficient
for small or large drives. No worry about belt
trouble, slippage of power and loss of produc-
tion where Morse Chain Drives are installed.

Write us if you have a transmission problem.
We give engineering service without any obliga-
tion.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the
World

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CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

SIL-O-CEL
PREVENTS HEAT PENETRATION

TRADE MARK REGISTERED U.S. PATENT OFFICE
A CELITE PRODUCT

Kiln Insulation

HEAT lost through walls and settings of un-insulated kilns increases production costs

- 1—by causing an excessive consumption of fuel;
- 2—by making it difficult to get high temperatures and hold them evenly;
- 3—by causing imperfectly burned ware, due to uneven temperatures.

SIL-O-CEL Insulation reduces production costs

- 1—by preventing heat waste, thus lowering your consumption of fuel;
- 2—by holding a uniform temperature within the kiln and so reducing the number of rejects;
- 3—by protecting the outer walls of the kilns from temperature strains, prolonging their life and saving repair bills.

Complete information on Sil-O-Cel Kiln Insulation gladly sent upon request. Write nearest office for Bulletin B-5A.

CELITE PRODUCTS COMPANY

New York 11 Broadway Chicago 53 W. Jackson Blvd. San Francisco-Monadnock Bldg.
Offices and Warehouses in Principal Cities
CELITE PRODUCTS LIMITED, New Birks Bldg., Montreal, Canada



He studied law, and was admitted to the Indiana Bar in 1893. Newspaper work always appealed to him and at different times he was the owner or editor of publications at Ridgeville, Ind.; Mt. Gilead, Ohio; Greenfield, Ohio, and Plymouth, Ohio.

In 1920 he became Advertising Manager for the Fate-Root-Heath Co., Plymouth, Ohio, which position he held until the time of his death.

In addition to his literary attainments Mr. White was renowned as an orator of exceptional ability.

He was a member of the Methodist Church, and active in all community affairs. He was beloved by all who knew him, for his unimpeachable character, wise counsel and staunch friendship.

PALERMO WILL GET CLAY PLANT

The Old Kentucky Ranch near Palermo, Cal., is to be the location of a new plant for the manufacture of brick. New, up-to-date machinery will be installed. Nelson Lund, owner of the land, is the author of the project.

BUILDING \$175,000 PLANT

\$175,000 is to be spent in the construction of a new plant for the Vitrified Products Corporation at Old Town, near San Diego, Cal., according to an announcement by George W. Kummer, secretary and general manager. The new addition will be an eight-kiln unit with a capacity of 50,000 brick or their equivalent per day. A two-story building 80x120 feet; a grinding and screening room; a machine room, and a dryer will be constructed.

According to Mr. Kummer, officials of the Santa Fe Railway have approved plans for establishing a spur track from the clay deposits at Linda Vista to the side of the plant. The shale deposits at Linda Vista are practically unlimited and will make a high grade of brick, drain tile, roofing tile, sewer pipe and other products.

Mr. Kummer says, "No clay products plant in America will be able to produce more economical or a higher grade of brick, sewer pipe, tile and similar construction commodities as our plant at Old Town. The deposits at Linda Vista are all above ground and absolutely no mining is necessary."

Officials of the corporation are: Victor Kremer, president; George W. Kummer, secretary and general manager; Rufus Choate, treasurer; and S. C. Hagen, vice-president.

BUILDING NEW PLANT IN DENVER

A new plant for the manufacture of stiff mud face brick exclusively is being built by the Denver (Colo.) Sewer Pipe & Clay Co. This plant will have a capacity of 50,000 brick per day. There will be twelve 32-foot round down-draft kilns and waste heat tunnel dryers. All of the equipment will be installed by Hadfield-Penfield Steel Co. It is expected that the plant will be in operation by June 1.

DELAWARE COMPANY FORMED

Cameron Clay Products Co., Wilmington, Del., has been incorporated with a capital stock of \$250,000, it is reported.

FORM COMPANY AT ST. PETERSBURG

The Acme Tile Manufacturing Co. was organized and incorporated in the latter part of April at St. Petersburg, Fla., with a capital stock of \$25,000, to engage in the tile manufacturing business in that city. The company is headed by Harry Forkel, of St. Petersburg.

PROMOTING FLORIDA BRICK ROADS

Move to further the interest of the public in brick paved roads and streets in cities and counties of Florida has been resumed by the paving brick manufacturers of that state. This will be the second year these manufacturers have been

Oil Fired Kilns



Require a Blower, Oil Pump and Heater as shown above.

When using our combination gas and oil burner, the blower is used for either oil or gas.

Ask for information regarding
T-J System of Burning Oil.

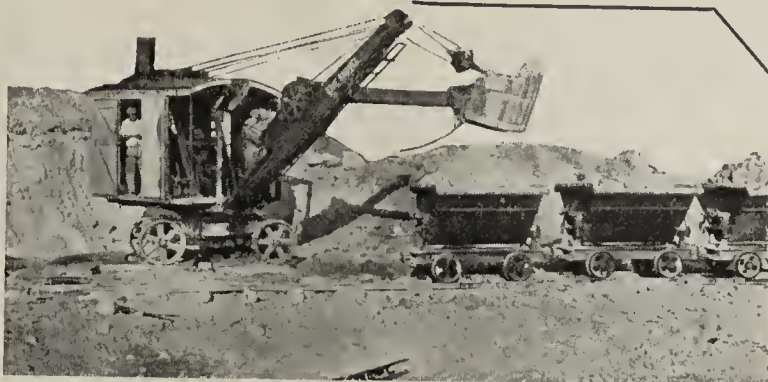
Tate Jones & Co. inc.

Furnace Engineers

Established 1898

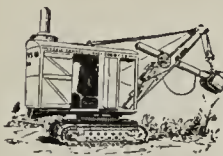
PITTSBURGH, PA.

New York — Boston — Buffalo — Philadelphia — Chicago — San Francisco — St. Louis



"No Shovel can beat the
'A' ERIE for a clay pit"

Writes G. W. Isenhour & Sons—



ERIE Shovels can be had either with broad tired traction wheels, standard gauge car wheels, or on the ERIE lubricated caterpillar type mounting. All easily interchangeable on the same truck frame.

"We have been digging stiff pipe clay with our 13-ton ERIE Shovel for the last 18 months, and its low cost and ease of operation have proven it an excellent machine for our work. The 'A' ERIE is giving us most satisfactory results"—G. W. Isenhour, Pres., G. W. Isenhour & Sons, Salisbury, N. C.

The Type "A" ERIE often does the work of a much larger shovel and saves you money both in first cost and operating cost. We have an interesting bulletin showing just what the "A" can do on clay and shale excavation, as well as many other classes of work. Write for Bulletin B-22.

ERIE STEAM SHOVEL CO.

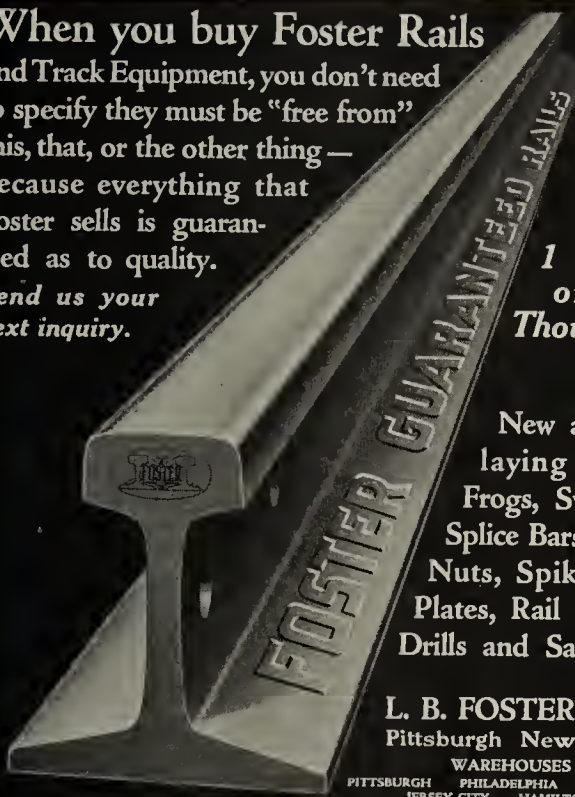
Formerly Ball Engine Co., Erie, Pa., U. S. A.
Builders of ERIE Steam Shovels and Cranes

ERIE

Revolving
Shovels



When you buy Foster Rails and Track Equipment, you don't need to specify they must be "free from" this, that, or the other thing—because everything that Foster sells is guaranteed as to quality. Send us your next inquiry.



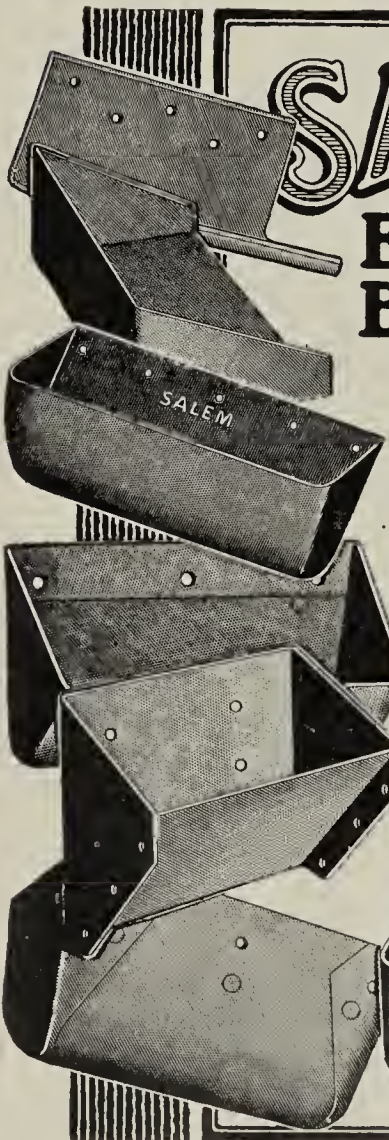
New and Re-laying Rails, Frogs, Switches, Splice Bars, Bolts, Nuts, Spikes, Tie Plates, Rail Braces, Drills and Saws.

L. B. FOSTER CO.
Pittsburgh New York
WAREHOUSES
PITTSBURGH PHILADELPHIA NEW YORK
JERSEY CITY HAMILTON, O.

YOUR PHONE, WIRE OR MAIL INQUIRY GIVEN IMMEDIATE ATTENTION



SALEM Elevator Buckets



The original—Awarded First Premium in 1880—which has many imitations—further endorsed by the many imitations now on the market.

Standard for 40 Years
Made in all types and sizes for every requirement in Regular, Medium, or Extra Heavy Gauges—stock sizes, or Special Sizes made to order.

Send for catalog and price list, or submit specifications for price quotations.

Mullins Body Corp'n
Successors to W. J. Clark Co.
101 Mill St. Salem, Ohio

Have You a Difficult Belt Problem?

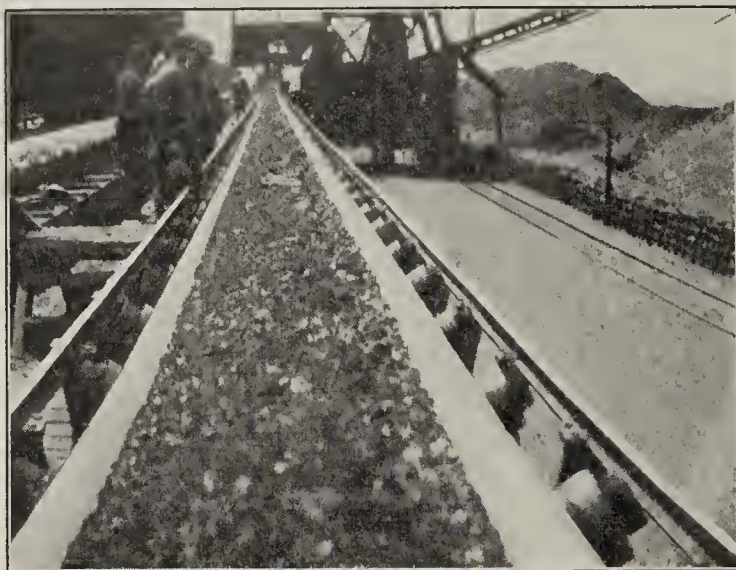
During the past thirty-seven years we have assisted many concerns with their conveying problems.

A saving in conveying costs was the invariable result when our recommendations were followed.

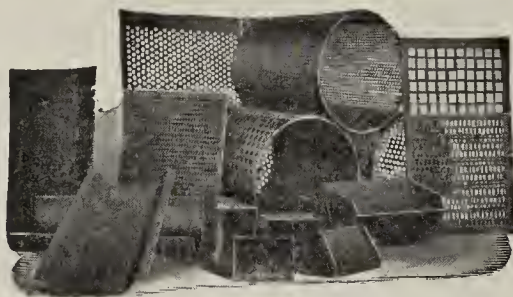
Our belt experts may be of assistance to you.
May we figure on your next conveyor?

Quaker City Rubber Co.

Mfrs. Mechanical Rubber Goods—Auto Tires and Tubes
PHILA. CHICAGO PITTSBURGH NEW YORK



HENDRICK SCREENS FOR ALL PURPOSES



**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION**

*Ask for your copy of the
Perforated Metal Handbook*

**HENDRICK MFG. COMPANY
CARBONDALE, PA.**

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Trust Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

conducting this work. This year, according to data received by the National Paving Brick Manufacturers' Association, Cleveland, Ohio, 18 newspapers will be used in developing the market. Advertisements will be run every other week, making 26 appearances during the year. Material will occupy two columns by six inches. The executive staff of the national association will cooperate with the manufacturers in preparing copy and supplying up to the minute data for the advertising.

MOULDING SELLING "GOLDEN GLOWS"

Thos. Moulding Brick Co., Chicago, is now selling extensively two comparatively new styles of face brick. They have given these brick the names, "Golden Glow" and "Steel Clay."

ACME INSTALLING MINTER SYSTEM

Douglas F. Stevens, Acme Brick Co., Danville, Ill., will install the Minter System of burning at his plant at Cayuga, Ind. All preliminary work has been done and actual installation will begin at once. It is proposed to arrange the work so that only two kilns will be out of commission at any one time.

WANT CLAY PLANT IN COLCHESTER, ILL.

The Colchester (Ill.) Business Men's Association is advertising the clay deposits of that city and is desirous to have a clay plant located there. Paving brick, face brick, fire brick, sewer pipe, drain tile and hollow tile have been successfully made from clay found at Colchester. Terra cotta and pottery clays are also found in abundance. These deposits are not new discoveries but have been known for 30 years and their development dates back almost as long.

CONSOLIDATED CO. REORGANIZES

A reorganization of the Consolidated Co. of Chicago has been completed. Plans have been adopted for a broad extension and expansion of the business in all its branches. This company handles practically all types of clay products as well as other building materials. The newly elected officers are all well known successful men, for many years actively identified with the building industry. They are: James J. Cronin, president; Edwin A. Nast, vice-president; W. J. Nast, secretary; and George H. Doerk, treasurer. In addition to these, H. A. Nast has been elected director. General offices of the company are at 1018 Chamber of Commerce Building, Chicago.

BUY FRANCESVILLE PLANT

H. K. Lee and J. B. Casey have purchased the plant of the Francesville (Ind.) Clay Products Co. They are remodeling it and will have it in operation very soon.

ACCEPT JUDGE MOLL'S RATES

Representatives of railroads, brick manufacturers and the Indiana public service commission in conference recently agreed to accept virtually the scale of Indiana brick freight rates set up by Judge T. J. Moll, of the Marion Superior court, Indianapolis, in a recent decision. These were printed in Brick and Clay Record of May 1, 1923. There were eleven minor departures from the judge's schedule, it was said, and the interested parties will ask the court to issue an order on the basis of the agreement. The case got before the court on a complaint of the carriers against brick rates ordered into effect by the commission. The court set aside the commission's schedule and made one of its own.

JIENCKE ENTERTAINS KIWANIS

The Independence (Kan.) Paving Brick Co. was host to the Kiwanis Club of Independence, recently. Harry Jiencke,



Russell Continuous Railroad Tunnel Kilns

Are suited for heavy clay ware.

Clay products manufacturers are installing them for that very purpose.

One of the most recent installations is that of the Gladding-McBean & Co., Lincoln, California.

Let our engineers prepare an estimate for your plant.

Russell Engineering Company
 Boston ST. LOUIS New York

Russell

TUNNEL KILNS



Rubber Goods for the Clay Industry

Test Special Rubber Belting
 Indestructible Conveyor Belting
 Elevator Belting
 Fire Superheat Sheet Packing
 Indestructible Sheet Packing
 Cobbs Piston Packing
 Steam Hose Water Hose
 Pump Valves

NEW YORK BELTING & PACKING CO.

New York Boston Chicago
 Philadelphia Pittsburgh
 St. Louis Salt Lake City
 San Francisco

RICH CLAY DEPOSITS

ALONG THE

Lake Erie, Franklin and Clarion Railway

If you are contemplating the construction of a new plant, get full information regarding the rich clay deposits situated in the HEART OF THE GREATEST INDUSTRIAL REGION OF THE WORLD, divided approximately—6 ft. Plastic Clay, 5 ft. Semi-Flint Clay, and 5 ft. Flint Clay, eliminating the necessity of importing any materials. In many places coal is underlying the clay.

L. E. F. & C. R. R. connecting with N. Y. C. Lines east and west; Penna. Lines east and west; Erie R. R.; Buffalo, Rochester & Pittsburgh R. R.

Write today for full information—No obligation

Lake Erie, Franklin & Clarion Railroad

FRANKLIN, - - PENNA.

No. 4 Burner



FOERST Fuel Oil Burners Give—

Economy in Fuel—because they develop full efficiency of the oil.

Economy in Labor—because they eliminate back breaking and vitality-sapping work of firing and clinking with coal.

Economy in Quality of Results—because color of ware is the same top and bottom. No sorting is necessary.

Write for catalog and information

JOHN FOERST & SONS, Bayonne, New Jersey

REPRESENTATIVES
 Baumes-McDevitt Machinery Co., St. Louis, Mo. W. G. Edmonds, Clyde, N. Y.
 Fuel Oil Engineering Co., Cincinnati, Ohio Elliott & Selby, Philadelphia, Pa.

FOERST

FUEL OIL BURNERS

PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO

MOBILITY

Watch it shake the dipper

WATCH a Northwest in a clay pit. See it dig deep and come up with its dipper piled high with sticky clay. Then watch its operator shake the dipper stick back and forth with fast sweeps and quick stops until the clay is loosened and falls.

This is just one more advantage of the Northwest's one-motor construction. It has no auxiliary engines, gears or racks; full power for shaking the dipper and for crowding is obtained directly from the 50 h. p. gas engine or electric motor of equal capacity.

Ask the Northwest Engineering Co., 1224 Steger Bldg., Chicago, Ill., for complete specifications.



NORTHWEST
GAS SHOVEL

**CRANE
DRAGLINE
SHOVEL**

president, took the guests thru the plant and explained the intricacies of brick manufacture. The trip was most interesting to the Kiwanians and opened the eyes of many to the workings of a modern brick factory.

DECIDE TO KEEP PRICES DOWN

Altho active demand for building materials and labor have forced building costs up somewhat over the past few months the Louisville manufacturers of brick and hollow building tile have taken a firm stand, and decided that prices of clay products will be held to the 1922 schedule. An advance was made in July of 1922, account of heavy increase in production costs, but no advance has been made since that time, and word has gone out that prices will not be changed, and that the builder can depend on brick prices to remain steady.

NORTHAMPTON MAY BURN WITH OIL

The Northampton (Mass.) Brick Co., Inc., has recently reorganized and purchased the brick plant which was the property of the late William A. Bailey. The company has equipped the plant with new and improved machinery, and has installed an electric motor for power, thus making the plant an "up-to-the-minute" one. The use of an oil burning system for the kilns is being considered and may be installed in the near future. The officers of the company elected at the annual meeting are: Charles L. Sauter, president; M. B. Sauter, treasurer; Robert H. Spencer, assistant treasurer and secretary.

WALSH RAISES CAPITAL STOCK

The Walsh Fire Clay Products Co. of St. Louis, Mo., has filed articles with Secretary of State Becker to increase its capital stock from \$1,200,000 to \$1,650,000. Its statement shows assets of \$2,297,738 and liabilities of but \$685,254.

DICKEY RAISES WAGES

A report states that the W. S. Dickey Clay Manufacturing Co., of Kansas City, Mo., has just announced an increase in the wages of its employes amounting to 50 cents a day for all classes of factory workers and clay miners in the eight plants of the company. Fred L. Dickey, general manager of the company, said the increase will affect approximately 1,200 men employed in the plants in Kansas City, Deepwater, Mo., Versailles, Mo., Pittsburg, Kan., and Macomb, Ill. The new wage scale becomes effective at once and the increase will be paid at the next pay period.

ST. LOUIS GIVES FRAME MORE LEEWAY

The St. Louis (Mo.) Building Department's rules governing the erection of fourth class structures outside the fire limits have been modified to permit more liberal use of frame construction in these sections.

Heretofore the erection of frame dwellings has been prohibited in any block nearer than 75 feet to the line of any street along said block where there is fronting upon either or both sides of said block six or more buildings of the first, second or third class. Under City Ordinance 32,265 signed by Mayor Henry W. Kiel on March 12 the limit is raised to ten or more brick buildings.

McCOOK CAPITAL STOCK \$75,000

McCook (Nebr.) Brick Co. has amended its articles of incorporation to the effect that the capital stock of this company shall be \$75,000, divided into 500 shares of common stock of the par value of \$100 each, and 250 shares of preferred stock of the par value of \$100 each.

OMAHA PLANTS BUSY

The big building program of Omaha, Nebr., for 1923 has forced its three brick manufacturing establishments to begin operations for an indefinite period. The plants are, the

Confidence! Faith!

We have faith in our ability to better your kiln operation and results by equipping them with GATES AUTOMATIC STOKERS. We back this up by our willingness to show you any installation we have made.

This is as fair an offer as can be made by anyone, and, we believe, merits your confidence. Come and see them yourself—no matter how skeptical you may be.

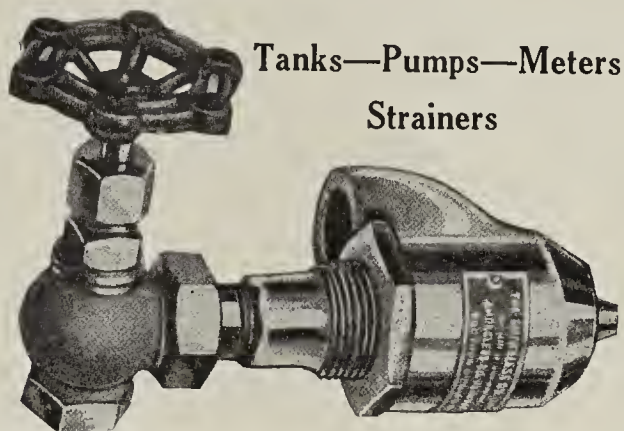
The Clay Service Corporation
128 N. Wells Street
CHICAGO

SUPERIOR SERVICE

Service that has given the user better burning results, a cheaper cost of production and a better quality of ware. This has brought the reward of a constantly growing demand for Smokeless Oil Burners.

The Smokeless Oil Burner Co.

Bucyrus, Ohio, U. S. A.

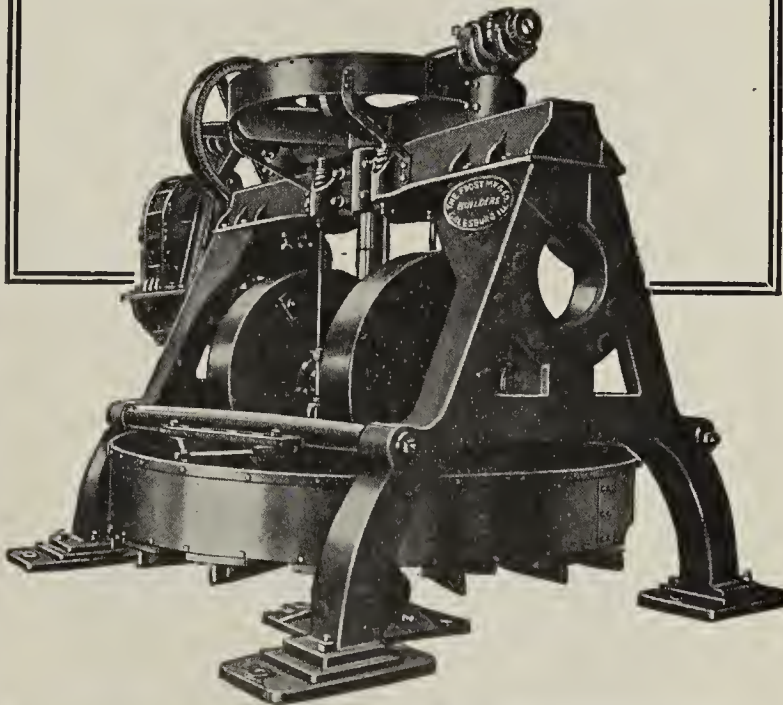


Tanks—Pumps—Meters
Strainers

BETTER QUALITY WARE

That is the result when Frost Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE



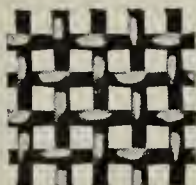
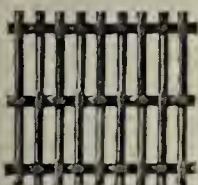
TYPE 31 - Six Foot HUM-MER

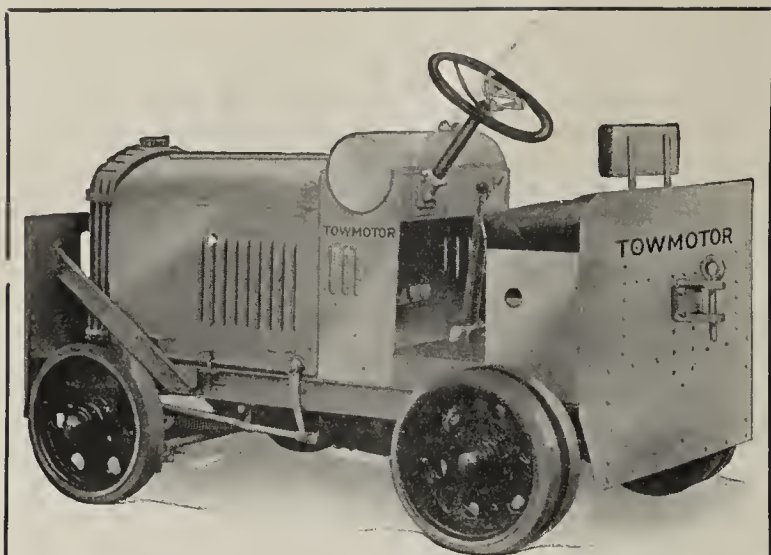
HUM-MER Electric SCREEN

Makes screening and crushing more profitable. Screens any material, wet or dry, from 2½" opening to minus 200 mesh

Send for Catalogue No. 45-B

THE W. S. TYLER COMPANY
CLEVELAND, OHIO
Manufacturers of Woven Wire Screens
and Screening Equipment





Not the lowest purchase price, but the lowest ultimate cost constitutes real cost and true economy.

That the TOWMOTOR gives the most for the lowest ultimate cost has been thoroughly demonstrated and proven by TOWMOTOR users, whose names we will be glad to supply along with descriptive bulletins and prices, upon request.

Write us today.

The Towmotor Company
1226 East 152nd Street
CLEVELAND

Cut Your Burning Time

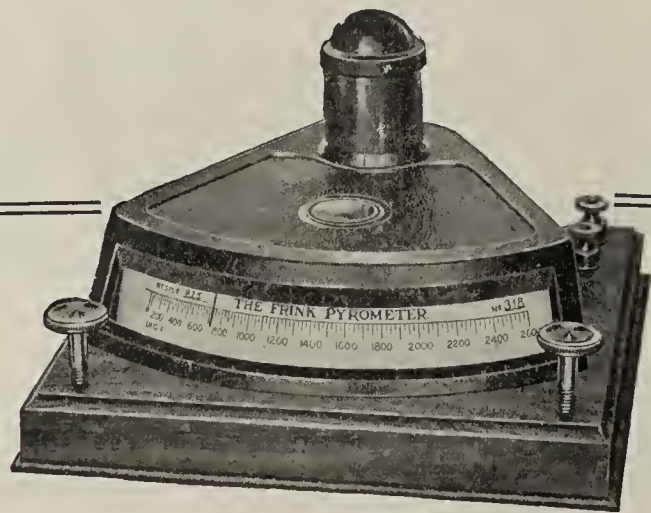
*by equipping your kilns
with*

FRINK PYROMETERS

which afford perfect control of all temperatures—saving time and money in the burning and enabling your burners to hold even temperatures, thus improving the quality.

WRITE FOR DETAILS

THE FRINK PYROMETER COMPANY
LANCASTER, OHIO



Omaha Clay Works, Kritenbrink & Sons, and Smith Brick Co.

With a supply of only 2,500,000 brick on hand, and the demand constantly increasing, the three firms are working overtime to get everything in shape to take care of the building program, not only for the present, but the entire year.

FORM COOPERFIELD BRICK CO.

The Cooperfield Brick Co., Camden, N. J., has been organized with a capital of \$500,000, to manufacture brick, hollow tile and kindred products. The company is headed by Arthur W. Hampshire and Louis A. Croxton. The registered office of the organization is at 317 Market Street.

COMPANY FORMED AT ROCHESTER

Rochester (N. Y.) Clay Brick & Tile Corp. has filed articles of incorporation with the secretary of state. The company will have a capital of from \$33,000 to \$165,000, it is learned.

HUDSON BRICK HANDLERS GET RAISE

It is more profitable to be a member of the crew of a Hudson river brick carrier than it is to be captain, says Dow Service report for May 5, 1923.

This fact was established on May 1, when the Hudson River brick manufacturers consented to grant the demands of brick boat unloaders for a wage increase from 80 cents to a dollar a thousand. Somewhere around 100,000 brick have been unloaded in a day by a crew of six men, but, spurred on by the higher wage, it is possible for these six men to unload 150,000 brick, which at \$1 a thousand would enable them to earn \$25 a day each.

Quickly calculating this possibility the wage advance to the crews of these brick-carrying boats was hardly agreed upon when the captains, heretofore receiving \$135 a month, including their housing and other emoluments, put in a claim for \$160 a month. While this proposition was being considered, however, the captains made a counter proposition to pay them \$90 a month, and permit captains to participate with the crews in the unloading of the boats at \$1 a thousand, so that they also might have a chance to earn what the crews could earn under the new rate.

NORTH CAROLINA TO HAVE NEW PLANT

The Brenner Brick Co. has been incorporated in Carthage, N. C., at 1245 First St., N. E., with a capital of \$200,000, it is stated. Ward W. Griffith, Merritt O. Chance and others are incorporators.

WHO MAKES HEARTH TILE?

An inquiry has been received recently from the Wirtz Coal Co., Hamilton, Ohio, asking where hearth tile can be obtained. If any reader manufactures this material, the Wirtz Coal Co. would like to get in touch with them.

INSTALLING NEW CUTTER

The Claycraft Brick Co., of Columbus, is installing a cutter at the plant of the company located at Groveport which will increase the output. Business at both the Groveport and Shawnee plants of the company is active and shipping is brisk.

BLAMES \$50,000 FIRE ON INCENDIARIES

State and county officials have opened investigations of a fire which recently destroyed the brick and tile plant of the J. A. Miller Tile Co. at Bascom, six miles west of Tiffin, Ohio. The origin of the fire was attributed by James A. Miller, head of the company, to incendiaries.

Five buildings were destroyed with a loss estimated at \$50,000. The loss of contents amounted to \$2,000. Due to the fire contracts for \$50,000 worth of brick and tile will have to be cancelled, Miller said.

If Marked

BREWER

It Is Good

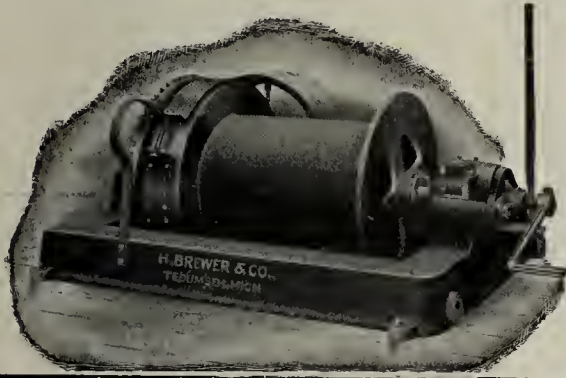
Clay Working Machinery

Block, Brick and	Feeders
Tile Machines	Disintegrators
Pug Mills	Dry Pans
Crushers	Cutters
Granulators	Hoists, etc.

Free Engineering and Clay Tests

Brewer engineering service is available without charge or obligation. Competent men will give you best advice, look over your plant and make suggestions for any needed improvements. Take advantage of this free service. Send for Brewer catalog.

H. Brewer & Company Box 25 Tecumseh, Mich.



Made for maximum service
not merely the average

TRADE
JENKINS
MARK

Jenkins Bros

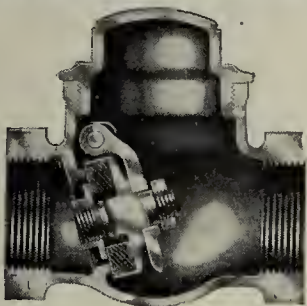


Fig. 352 Sectional
view Jenkins
Standard Brass
Sewing Check
Valve.

The disc of this check valve lifts well
out of the passage—

and offers no more resistance to flow than the
best gate valve.

Valve is fitted with Jenkins Renewable Disc, and
the angle of seat is such that it opens readily at
low pressures.

It is a strong durable valve with globe shaped body.
Jenkins Check Valves are also made in horizontal,
angle, and vertical types, screwed or flanged, in
standard and extra heavy patterns.

JENKINS BROS.

New York Boston Philadelphia Chicago
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Factories:
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Always marked with the "Diamond"

Jenkins Valves

SINCE 1864

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We Ought to Know

We've spent over thirty years building tanks
for all sorts of uses. Our engineers, designers
and workmen are constantly thinking tanks.
Our products are living up to their reputation
in all parts of the country.

The Caldwell Steel Tank is like our other prod-
ucts in that it reflects all the excellence of
character that such experience produces. You
can rely upon it for unusual performance.

Send for Catalog

W. E. Caldwell Co.
Incorporated
2380 Brook Street
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Caldwell
TANKS
AND
TOWERS

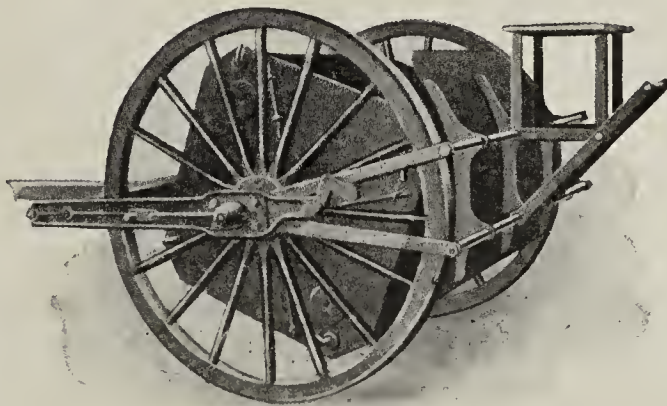
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way
than by using The Fernholtz Improved
Clay and Shale Gatherer.

Actual tests and testimonials from brick,
tile and pottery plants in nearly every state
in the Union verify our claim that with the
use of this improved gatherer about ONE-
HALF OF THE COST OF CLAY AND
SHALE GATHERING CAN BE SAVED.

Write for full information
regarding this machine

Fernholtz Brick Machinery Company
ST. LOUIS, MO.



THE MINTER SYSTEM

—200 Lbs. Coal per Ton of Ware—

WE BUILD COMPLETE PLANTS or ANY PART

Nine of our Kilns will produce as much as 15 Kilns burned periodically—any product—any fuel. Saving first cost of six Kilns.

Ten of Our Recirculation Drier Tunnels will dry as much as fifteen old line tunnels. All ware dried evenly without strains. No loss, wrecks or other delays. Saving first cost of 6 tunnels and equipment.

Kilns and Drier can be adjusted to the highest speed that any material will stand. What could do more?

DON'T BUILD BEFORE YOU KNOW

The Minter System Plants are Producing the Cheapest Building Material made in America today.

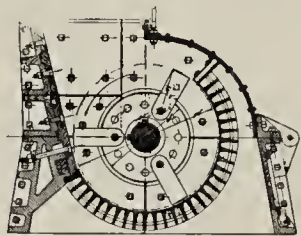
The Minter System

HOME OFFICE
Albany, Georgia

BRANCH OFFICE
215 Doctors Bldg.
Columbus, Georgia

Double Your Capacity!

Simplicity, durability and large capacity are points in the Gruendler Crushers and Pulverizers which make them the most popular with Brick and Clay Manufacturers.



The illustration shows the interior of the powerful Gruendler Shale and Clay Crusher. It handles steam-shovel material and reduces it to the proper fineness for your Hummer screens. Doubles your capacity with no additional power or labor.

We also manufacture tailing grinders, dryers, revolving screens, elevating and conveying machinery.

Write for circulars showing how to reduce costs.

GRUENDLER PATENT CRUSHER & PULV. CO.
924 N. Main St. Established 1885 St. Louis, Mo.

GRUENDLER
CRUSHERS • PULVERIZERS • GRINDERS

STANDARD CLAY CO. FORMED

The Standard Clay Co., of Empire, Ohio, has been chartered with an authorized capital of \$100,000, it is reported, to mine and sell clay as well as coal and other minerals. The incorporators are Fred W. Stone, M. G. Belt, C. G. Jones, George S. Cotrell and R. R. Holmes.

LIMA BUILDING WAGES RISING

Building in Lima, Ohio, loomed up extra bright as many building projects had been contracted for early. Recently the carpenters' union has demanded an increase in the wages from 70 to 90 cents per hour and this is having a bad effect on new projects. Other building trade unions are also expecting an advance in wages.

COMMON BRICK SHORTAGE IN OHIO

Scarcity of common brick is one of the features of the brick trade in Columbus and central Ohio. With the boom in building common brick are in good demand and there is a growing scarcity in the supply. Sand mold brick are selling around \$16.50 and shale brick around \$18.50 delivered on the job. No great scarcity is expected for the time being, however, as all of the common brick plants are being operated to capacity.

HIGHWAY BIDS OPEN TO ALL MATERIALS

Citizens of the state of Ohio are most certainly interested in Governor Donahey's letter to State Highway Commissioner Herrick which was recently printed in the Hamilton News. In his letter, the Governor states that there must be no more "closed specifications" in Ohio and that he will sign no contracts unless there is complete competition between all materials, the cheap as well as the costly. Bids on gravel and macadam construction must be received along with proposals on such surfaces as brick, asphalt, concrete and asphaltic concrete.

STATE PLANT AT CAPACITY

While an extensive Ohio highway improvement program has been scheduled for the coming year, and Governor Donahey has demanded that bids be called for improvement of these highways with the various kinds of materials, very few prison made brick will be available during the next 12 months. The brick plant, which is operated by prisoners from the penitentiary, at Junction City is now working full capacity, and turning out approximately 45,000 brick daily, but only a small proportion of these are pavers. The demand for building brick is far greater than ever before, and preference is being given to these instead of paving block, it was said by J. E. Clark, manager of sales in the welfare department.

LARGEST PRODUCER OF VITRIFIED CLAY

The Uhrichsville-Dennison Clay district, the world's largest producer of clay products, took the lead from Akron several years ago. Three large clay plants near Akron have been dismantled during the last three years while plants in the Uhrichsville territory are being enlarged and new ones built.

The latter district produces practically 25 per cent. of the vitrified products manufactured east of the Mississippi river. Pipe and brick are exported from there to Cuba, Mexico and Canada. If the sewer pipe annually manufactured there were joined together they would extend one-quarter of the way around the world. The product requires 16,600 freight cars and the annual freight bill is \$1,000,000.

The industry at Uhrichsville employs 1,200 workmen and 200 additional coal and clay miners and office employees. The annual payroll is \$2,000,000. Capital invested exceeds \$3,250,000.

"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of the Columbia Brick Works, Portland, Oregon, in regard to their

MARION "RUST SPECIAL" Feeder and Mixer

Read his letter:

"We have been using the Rust Feeder for some time. We find that it gives us a better mixture of clay and a more uniform feed into the crusher, and has proved entirely satisfactory for our requirements."

Write for catalog describing the full line of MARION Clay Plant Equipment. No obligation to buy, but money in your pocket if you do.

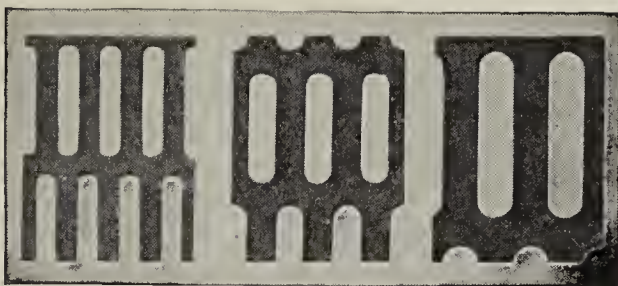
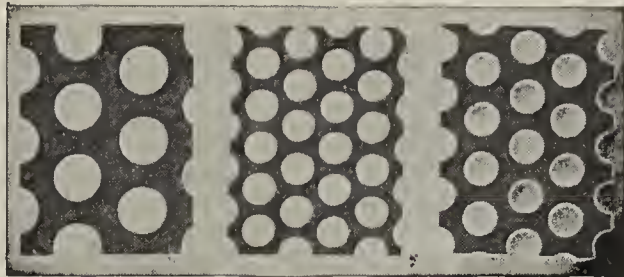
Marion Machine Foundry & Supply Co.

P. O. Box 395

MARION, INDIANA



Perforated Steel Screens



**For Screening Clay, Shale, Sand,
Gravel, Stone and Cement**

All sizes and shapes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

USE THE CLASSIFIED COLUMNS

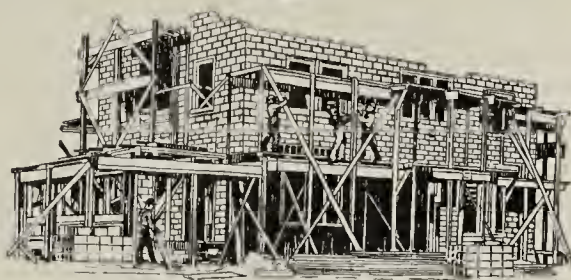
Have you a plant for sale?
Will you sell some old machinery?
Do you need an executive?
Are you looking for a position?
Can you use More Capital?
Do you want some used equipment?

RESULTS ON ALL OF THESE POINTS
WILL SURPRISE YOU

Address

Brick and Clay Record

407 S. Dearborn Street
Chicago, Ill.



How To Increase Brick Profits!

More bricks are wanted than ever before. Yet many yards are losing big added profits through haphazard production methods. Increased output and the consequently larger fuel consumption puts a premium on every ton of coal. Temperature control provides the only method of making each firing yield the utmost in uniformly good bricks. Write now for evidence that the installation of

Thwing

PYROMETERS

increase brick profits by providing positive temperature control.

THWING INSTRUMENT COMPANY

3347 Lancaster Avenue
Philadelphia, U. S. A.



243
115



180 Tons Per Minute

Peabody's 44 bituminous mines have a capacity of 86,700 tons per day—10,837 tons each hour—or 4 forty-five ton cars loaded, trimmed, weighed and inspected every sixty seconds.

This tremendous tonnage provides the means for exceptional service—a fact worthy of consideration when selecting your source of supply.

Send us your inquiries

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Kleenburn, Wyo.
Spokane, Wash.



PEABODY for SERVICE

The only cloud in the industry's horizon is transportation troubles. Local plants are unable to get more than 60 per cent. of the cars required. Orders are increasing principally due to the deferred programs of sewer building.

SALEM BUILDING NEW KILNS

The Salem (Ore.) Brick & Tile Co. will erect two kilns at once, to cost \$5,000, it is said.

TAKES OVER PACIFIC FACE BRICK CO.

Kern Clay Products Co., Portland, Ore., announces that it has taken over the former holdings of the Pacific Face Brick Co. at Willamina, Ore., and will make high-grade face brick, building block, partition tile and drain tile. Offices and sales room of the company are located at 277 Hawthorne, Portland.

OREGON TO HAVE NEW PLANT

The Astoria (Ore.) Brick & Building Material Co. has purchased part of the site formerly occupied by the Northern Pacific Brewery and will erect a plant thereon to have a capacity of 45,000 common and 20,000 face brick per day, it is stated.

FRANKFORD BRICK WORKS GETS CHARTER

The Frankford Brick Works, Inc., Philadelphia, Pa., has been incorporated under state laws with a capital of \$100,000, to take over and succeed the company of the same name with plant on Torresdale Avenue. John Major is treasurer of the new organization.

HARBISON-WALKER EARNES \$3,370,333

In its 20th annual statement to stockholders, the Harbison-Walker Refractories Co., Pittsburgh, Pa., shows earnings after expenditures for ordinary repairs and Federal taxes, to be \$3,370,333. After charges and dividends there remained surplus profit of \$803,571.

In his annual statement to stockholders, Chairman H. W. Croft said in part: "The past year's business is somewhat better than was anticipated at the beginning of the year, showing a gradual increase in volume from 40 per cent. in January to 75 per cent. in December, with an average volume of 65 per cent. over the entire year. We believe we are warranted in forecasting that the present volume of business (about 75 per cent.) will carry thru not only the first half of 1923, but the second half as well."

SENDS "AIREDALES" TO MINNEAPOLIS

I. A. Ryttenberg, owner of the Sumter (S. C.) Brick Works, advises that an order has just been received by the company for 200,000 of his "Airedales" from St. Paul, Minn., to be used in the construction of a school building there. The unusual part of it is that the order was entirely unsolicited, and received in the face of considerable competition for the same job. It amounts to nearly \$5,000, and is the biggest order the Sumter company has ever received from such a distance.

PLANNING ROOFING TILE PLANT

John G. Burchfield, of Milligan College, Tenn., is reported to be interested in the establishment there of a plant for the manufacture of roofing tile from kaolin, and has asked for information from manufacturers of this sort of machinery, as to prices, and so forth.

CHEROKEE OBTAINS SITE

The Cherokee Brick Co., a new concern recently announced organized and incorporated at Knoxville, Tenn., by a group of Knoxville business men, has obtained a site and completed arrangements for the construction of its new plant, which is

to be located at Pratt and Mitchell streets, in Knoxville. The plant will include a factory proper, dry kiln and other equipment, and will cost approximately \$60,000 to \$65,000.

PURYEAR, TENN., TO HAVE NEW PLANT

A new plant with a daily capacity of 35,000 to 40,000 brick is being established at Puryear, Tenn., by the Dixie Brick & Tile Co., according to O. A. Harker, Jr., president of the company. The plant is to be finished and ready to operate, it is believed, some time this spring.

VENABLE STARTING NEW PLANT

A. E. Venable, of Rockwood, Tenn., who has been in the brick manufacturing business in the southern territory for some time, has acquired a site near that city and advises that he is planning the establishment there this spring of a new brick manufacturing plant to have a daily capacity of approximately 50,000 brick. Further details of the project are not as yet available.

SOUTH EXPECTS GOOD BUSINESS

From all over the South, reports of "better business" are helping to boost the brick and clay product people's enthusiasm. Business of every kind is good in Nashville, Tenn., especially in the building trades.

Building permits issued for the first three months of 1923, more than doubled permits issued for the same period of 1922, both in number of permits and in value. The tendency of residential construction is more toward brick than ever before in this city. This is, in all probability, due to the extensive "Build With Brick" advertising campaign that the Bush-Herbert corporation is carrying on.

Labor conditions are fairly good; the supply nearly meets the demand, but a shortage of unskilled labor is looked for from now on thru the summer months. The first week of spring has caused a rush at the office of the Supervisor of Buildings, and April, May and June permits are expected to break all previous records.

COMPANY FORMED AT CONROE, TEX.

Conroe (Tex.) Brick Co. has filed a charter with the secretary of state, it is said, with a capital stock of \$15,000. Its incorporators are: B. F. Hinchcliffe, W. M. Merriss.

PLANS TO OPEN CLAY MINE SOON

The Eureka Coal & Clay Co., Athens, Tex., operating coal properties in the Easley farm section, has tentative plans under consideration for clay mining work on a large tract of proven clay land in that district. The company is capitalized at \$50,000, and has recently installed a large quantity of coal mining equipment.

TEXAS AND ARKANSAS PLANTS MERGE

Consolidation of the Fort Smith (Ark.) Brick Co. with the Acme Brick Co. of Fort Worth, Tex., has just been effected, a report states, and the latter has increased its capital stock from \$650,000 to \$1,050,000. W. R. Bennett, president of the Acme Brick Co., is alleged to have said that the merged brick manufacturing plants will have an annual output of more than 65,000,000 face and fire brick. The company will operate four plants in Denton and Bennett, Tex., and Fort Smith and Perla, Ark. Extensive plans are being made to reorganize the industrial sections of the four plants and extensive improvements are to be made.

"For many years Fort Worth has been known as one of the leading brick manufacturing centers of the country," said Mr. Bennett. "Improvements at the four plants will be started immediately to enable the company to carry on its manufacture of brick without hindrance to operations. New machinery, kilns and everything necessary will be installed."

"Hurricane" Dryers



TUNNEL DRYER FOR INSULATORS

A QUARTER of a century's experience in the drying field coupled with up-to-date equipment and the best of service has placed "Hurricane" Drying Equipment in the lead.

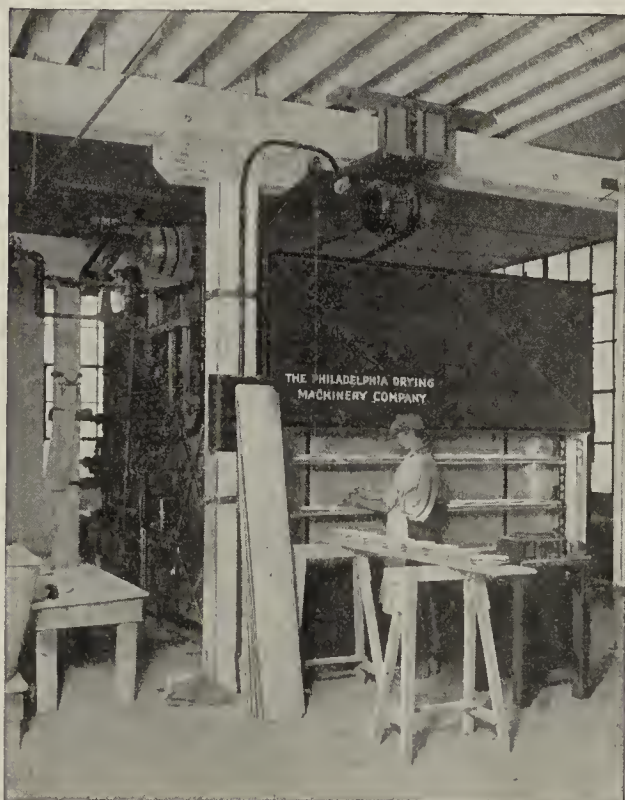
Our engineers are prepared to submit specially designed machines where standard machines will not do.

Automatic Mangles
Automatic Stove Rooms
Tunnel Dryers
Sagger Dryers
Electrical Poreclain Dryers

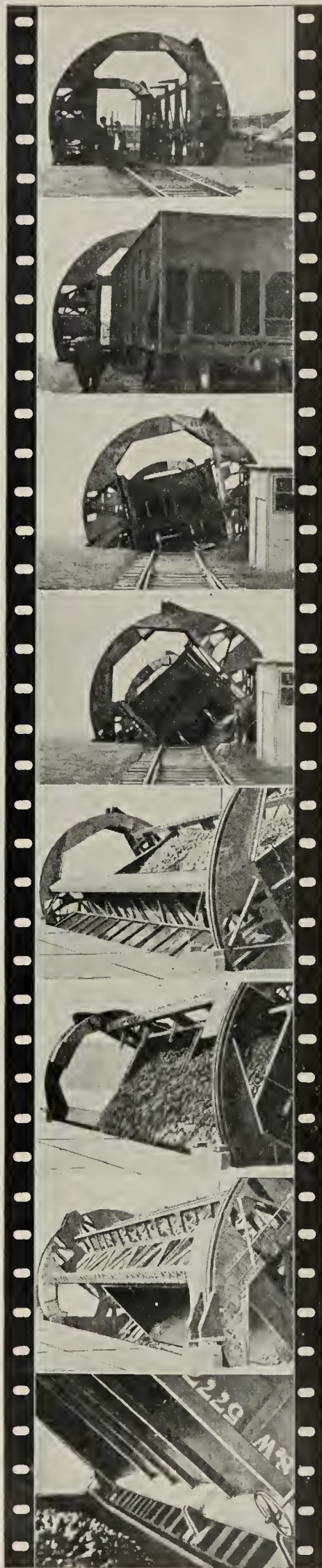


**The Philadelphia
Drying Machinery Company**
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Western Agency: 1814 Continental Bank Building, Chicago



AUTOMATIC MANGLE FOR DIPPED



A Quick Turnover

Here's a movie of a quick turnover of a carload of coal. Imagine unloading this car by hand. It's an all-day-job for a crew of men, and if you haven't the men it means demurrage charges into the bargain. With a

ROBBINS Car Dumper

you can empty this car in five minutes. Just switch her in place, clamp her down and turn her over. That's all there's to it and a couple of men can dump a train-load a day—every car as clean as a whistle.

For Coal, Clay or Shale

When you're dealing with bulky materials, handling costs run high. It will pay you to investigate the Robbins Car Dumper for unloading your coal, clay or shale. Drop us a line today. There's no obligation and the information may prove valuable.

ROBBINS MACHINERY & SUPPLY COMPANY

444 West Grand Ave.
CHICAGO, ILL.

"Machinery for Moving Merchandise"

U. S. SPECIFICATIONS ON BRICK WORK

(Continued from page 873)

hard-steel nails, or other similar devices may be used, but the use of wood plugs in any form will not be permitted.

86. **Common Brick Arches.**—Arches the full thickness of the walls or the full depth of reveals shall be turned over all openings not provided with lintels, and, except where otherwise indicated, arches shall have not less than three rowlocks. Arches must spring from extreme ends of lintels or centers. Skewbacks with full bearings must be cut for all arches.

87. **Centers.**—All arches must be turned on strong centers, which must not be struck until the mortar has set.

88. **Chases, and so forth.**—Pipe chases shall be straight and plumb from bottom to top.

89. **Protection Against Staining.**—The contractor shall take every necessary precaution to protect facing brickwork against staining, and the tops of all walls shall be kept covered with boards or waterproof paper in the discretion of the superintendent when the work thereon is not in progress. Upon leaving off work the scaffolding boards should be turned up to prevent dirt, and so forth, washing against the walls.

90. **Cleaning.**—All face brickwork shall be cleaned with a wash containing no acid or coloring matter and satisfactory to the superintendent of construction. Facing brickwork and stone shall be cleaned down at the same time.

Machinery and Equipment

Devices and Methods, New and Old Concerning Which Information of Interest to the Clay Manufacturer Is Published

MACHINES DIG UNDERGROUND SUCCESSFULLY

One of the items that has always made the mining of clay by underground methods expensive is that it has been universally accepted as necessary that this work must be done by hand. The coal and ore industries, however, have had in use for some time a type of loading machine that reduces the amount of actual manual labor to a minimum.

Most of the different makes of these machines are driven by compressed air, altho some can be driven by other types of



Excavating Clay on a Subway Job in Toledo. This Machine Is Made by the Hoar Shovel Co., Inc., of Duluth, Minn.

power. This fact is especially serviceable for a plant that uses or plans to use compressed air for drilling the blast holes in the clay. The machines are built somewhat along the lines of a standard power shovel for above-ground excavation. They are built to take up as little room as possible both in height and on the sides.

One of these underground shovels is rated to dig and load

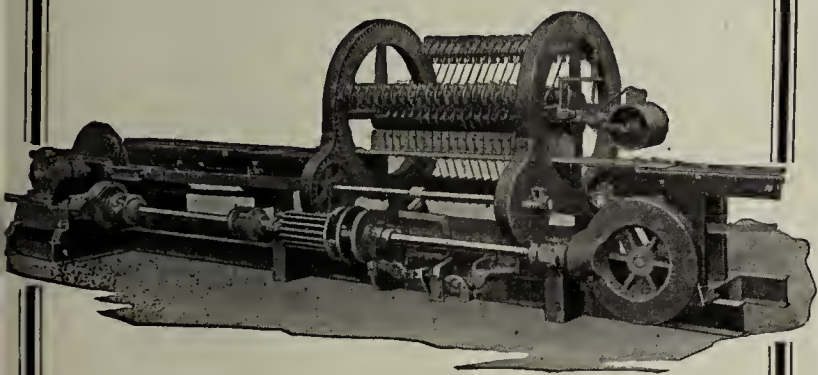
Why Gamble?

—When you know that the Freese Automatic Cutter has been on the market 24 years—

—When you find it operating successfully in several hundred plants, handling many kinds of clay — operating satisfactorily under all sorts of working conditions—

—When you see it producing the highest grade unrepressed face brick, as well as fire-brick, pavers and common builders—

—Why gamble in selecting an automatic cutter?



Freese Rotating Automatic Cutter

E. M. Freese & Company
Galion, Ohio

Dependable Machinery of Proven Efficiency



"Firemen's Delight"

Mined in the heart of the Clinton, Indiana Field, which is generally conceded to contain a quality in its "Fourth Vein" that is second to none in the Bituminous Coal World.

Preparation? — Our Hobby. We use the latest improved Shaker Screens, Loading Booms, and Picking Tables— and employ men who operate them with 100 per cent. efficiency.

The very coal you need to solve your steam and clay burning problems.

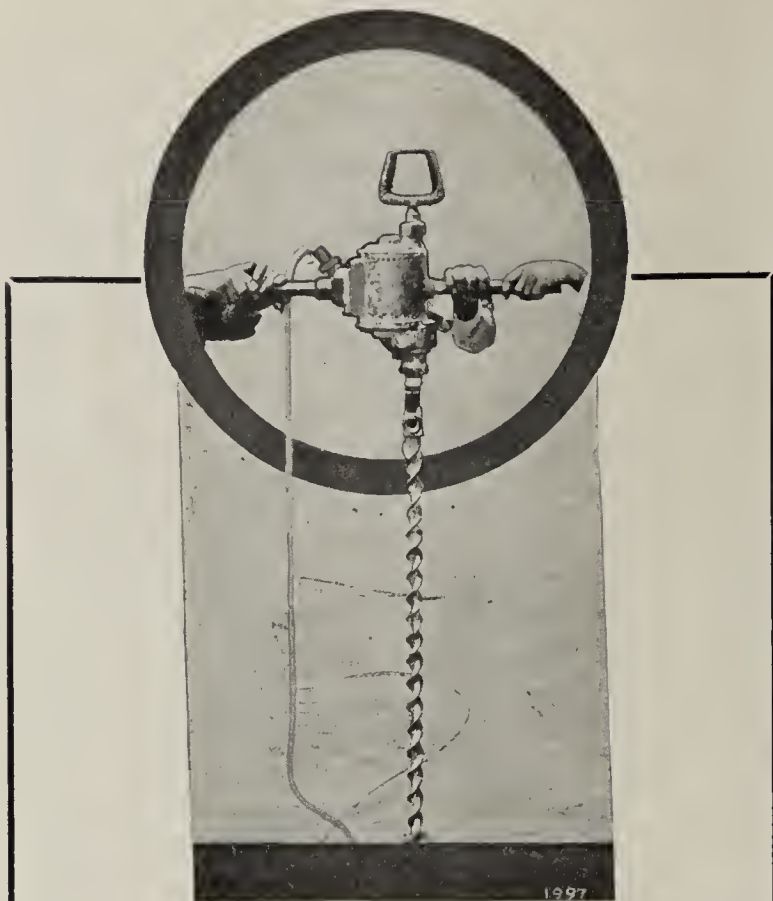
Zimmerman Coal Company

609 Tribune Building

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Terre Haute,

Indiana



Connect-up with Little Giants

WHEREVER there's a current outlet, either D. C. or single, two or three-phase A. C., Little Giant Electric Coal Drills are widely used for shot-hole drilling and repair work.

For example, the A. P. Green Fire Brick Company, Mexico, Mo., using the Little Giant Electric Coal Drill illustrated, drilled fourteen four-foot shot holes through plastic, semi-plastic and flint clay while a hand auger drilled one such hole.

Put your shot-hole drilling and repair jobs on a production basis. Use Little Giants.

Address nearest Branch for trial drill.

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Chicago Pneumatic Building, 6 East 44th St., New York

Sales and *Service Branches all over the World

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R-15

BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS • VACUUM PUMPS • PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES • ROCK DRILLS • COAL DRILLS

LITTLE
Coal



GIANT
Drills

five or more times as much as can be loaded by hand. This means that where three rooms or entries are now being worked each by two men, one machine will do the same work in one entry. That naturally will reduce considerably the cost of the props and cribbing now in use. This is a big item in addition to the savings in labor and other operating expense. One type of machine, it is said can do better and in fact can load as much as ten men can do by hand.

The use of compressed air also assists in the ventilation of the mine. These power shovels, altho particularly adapted to underground mining, can be used in above-ground digging work very successfully. In hard clay or shale it is advisable to blast it down, but in softer clay it is possible and cheaper not to use explosives.

There are two manufacturers of these machines, the Hoar Shovel Co., Inc., and the Lake Superior Loader Co., both of Duluth, Minn. The machines made by these two companies are shown in the first two illustrations.

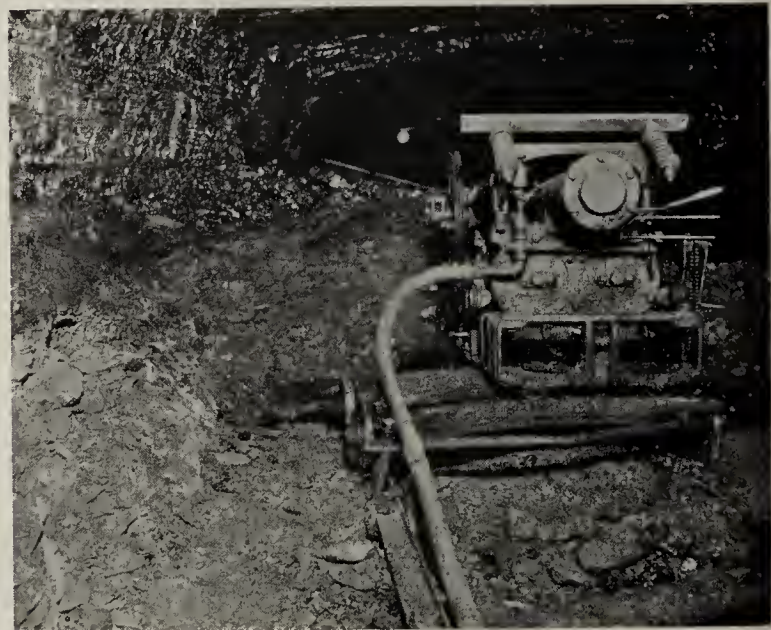
In addition to these there is a larger underground power shovel made by the Myers-Whaley Co., of Knoxville, Tenn. This machine has been used for a number of years in loading lead, copper and iron ore, rock salt, shale, limestone and similar materials underground.

The first machine made by this company was installed in 1913 in a rock salt mine in western New York. The seam is eight feet thick. Since that time the original purchasers have bought nine additional machines. Each machine loads 250 tons of salt per nine-hour day.

This same type of machine has been used very successfully in all kinds of tunnel work from New York to San Francisco, 13 of them working in a tunnel for water supply for the latter city at the present time.

The illustration shows a standard No. 4 machine loading shale. Either electricity or compressed air can be used as power, but the manufacturers recommend the former.

This make of underground shovel is equipped with an



Excavating Fire Clay Without Blasting. This Machine Is the Shovel loader Made by the Lake Superior Loader Co., of Duluth, Minn.

automatic shovel motion, which delivers the material to two conveyor belts in series. The material finally drops into the clay car.

This machine has been developed during the past 14 years and is now standardized. The shovel and front end of the machine can be swung laterally so as to cover a space 20 feet wide from one track. The rear end of the machine can be adjusted laterally so as to load on curves or parallel track.

Manufacturers of fire or face brick, or in fact of any clay products, who mine their raw material should seriously con-



The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men—in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Belt Conveyors and Belt Elevators.....	\$5.00
Bricklaying in Modern Practice.....	1.20
Bricklaying System.....	4.00
Building Construction and Superintendence, Part. I, Masons' Work.....	7.00

Belt Conveyors and Belt Elevators.....	5.00
Ceramic Industries (A Treatise on) E. Bourry....	6.00
Clay Plant Construction and Operation.....	4.00
Clay Products Cyclopedia.....	3.00
Clayworkers' Handbook.....	6.50
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Land Drainage.....	2.00
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Manufacture of Roofing Tile, (English Edition)....	1.25
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Modern Brickmaking.....	7.00

Observations on Pottery.....	.60
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Powdered Coal as a Fuel.....	4.50
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Steam Power.....	3.25

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent. import duty.

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Brick and Clay Record
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Isn't It Foolish—

To expect your firemen to fire your kilns using pitchforks?

It is just as foolish to expect your machine to turn out good ware with an improper die.

The 4x5-two cell, double stream, tile die No. 7797 illustrated, was made for The Malvern Fire Clay Co., Malvern, O. Ask them what they think of our dies.

Let our engineers plan your die so that your machine can make the highest grade of ware possible. The benefits will show up in your additional profits.

**The LOUISVILLE MACHINE
MANUFACTURING CO.**

LOUISVILLE, OHIO

**“IF IT'S
DIES
YOU WANT
WE
MAKE 'EM”**



Five more

BAY CITY Excavators

are being shipped this month to California, to clay plants who purchased them to CUT LABOR COSTS AND TO INCREASE THEIR PRODUCTION.

The Digger that even the small plants can afford

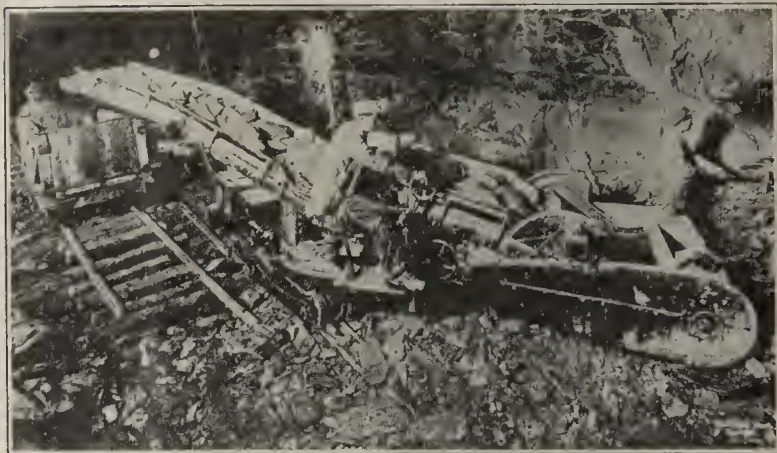
THE
Bay City Dredge Works
BAY CITY, MICH.



sider installing a machine made by one of these companies.

It is not many years since it was thought impossible to make clay products by machine. Developments, however, have shown this to be absolutely necessary, in order to reduce the use of labor to a reasonable amount.

Similar savings are possible in underground work. Labor



Standard No. 4 Shovel as Used in Shale and Other Mines. This Machine Is Made by the Myers-Whaley Co., of Knoxville, Tenn.

costs must be reduced. Prices can then be scaled accordingly, and both the industry and the public will benefit greatly.

These statements are also applicable to fire clay mines, that is, mines that sell raw or ground fire clay to steel mills and the numerous other consumers of this commodity.

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

SHOVEL DETAILS SIMPLY EXPLAINED

The Thew Shovel Co., of Lorain, Ohio, is issuing a broadside every month. These broadsides explain the special engineering features of their product in great detail, and the copy is written in an interesting style that can be easily understood by the man who is not technically trained.

The topic of the first broadside was, "The Business End." This explains the construction of the boom, and the operation of the crowding mechanism. A special feature of this circular was the listing of the construction of the crowding mechanism for the steam and the gasoline shovels on adjoining pages. It was, therefore, easy to compare these two types of machines.

The second folder had for its subject, "Backing the Boom." This explained the construction of the house and power unit of both steam and gasoline shovels. A phantom picture of the steam shovel was shown by means of which the location of the several points could be easily understood. One interesting paragraph in this folder reads, "perhaps it is carrying it too far to say that there is any thrill in running a steam shovel, but the man who runs a Thew will generally confess that there is at least a lot of satisfaction in handling the levers and seeing results."

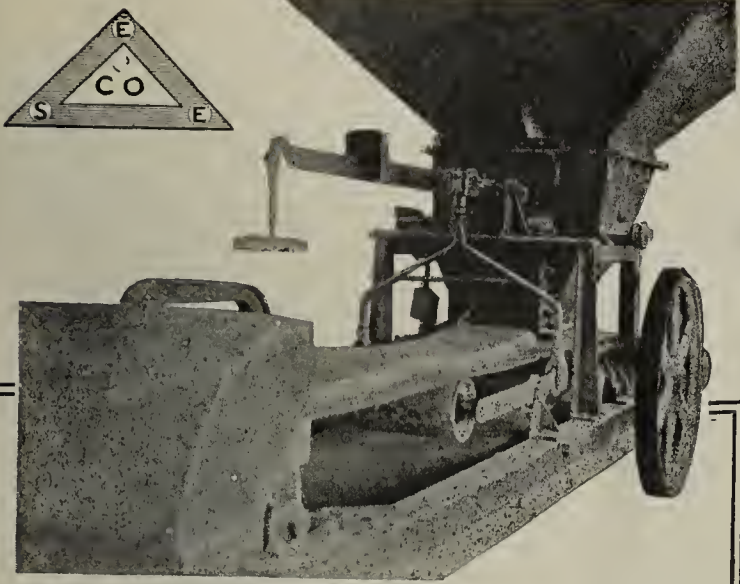
The third broadside treats of, "Upholding the Business End." This is an explanation of the Thew truck, the power steer, the two-speed drive, the caterpillar or wheel traction, the flexibility and other advantageous features.

These three folders are part of a series of four, and anyone interested in power shovel operation would be well repaid if they wrote to the Thew Co., Lorain, Ohio, for a complete set.

✻ ✻ ✻

MORE ABOUT STEVENSON'S PACIFIC COAST OFFICE

Reference was made in the May 1 issue to the arrangement which the Stevenson Company is making for a Pacific Coast office, in charge of Mr. E. W. Dow. For the benefit of those who will want to get in touch with this new office, we



Don't Make Ware Out Of \$ \$ \$

Sell every pound of clay that goes thru your die. When you throw breakage back thru your machine either from the cutter itself, or from the dryer or kiln, it is the same as pouring your hard earned gold dollars into the machine.

The POIDOMETER will make it possible to greatly reduce or entirely eliminate waste and breakage by guaranteeing absolute uniformity of shrinkage at every point and for all your products. This is shown by the results of tests at the plant of Los Angeles Pressed Brick Co.

The actual tests are:

	Moisture in Clay on Poidometer	Moisture in Finished Ware
7:30 a. m.....	12.5%	20.7%
10:45 a. m.....	11.3%	20.4%
1:00 p. m.....	9.9%	20.8%
4:00 p. m.....	12.0%	20.7%



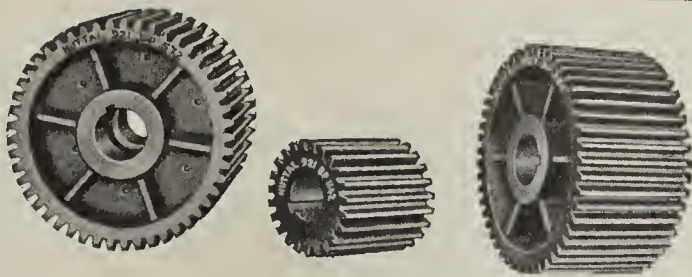
239

Write for Complete
Description.

**Schaffer Engineering &
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2828 Smallman Street
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SCHAFER

POIDOMETER



AN OFFER

TO ANY BRICK OR CLAY PLANT
IN THE UNITED STATES

We know that one inherent difficulty in your manufacturing plants is more breakage and more rapid wear of gears than experienced in many other industries.

It is physically impossible for a cast tooth gear to run as truly and as smoothly as a cut gear, and so long as cast gears are used breakage will persist.

It is physically impossible for an untreated steel gear to have the strength, toughness and surface hardness of a heat-treated gear, so as long as untreated gears are used wear will be more rapid—gear life will be relatively short.

Now here is our offer: Let us make you one gear or one pinion, no matter how large or how small, to replace the gear you have the most trouble with now, either from wear or breakage, and we will guarantee our BP gear to last at least four times as long as any cast tooth or untreated gear in the same place.

If it will do that, you don't need any mathematician to figure what your saving will be. You save the cost of three gears and the labor cost of three renewals, and you save three shutdowns. Send us your specifications today and begin this big saving at once.

*Let us send you booklets going
into details on these subjects.*

R.D. NUTTALL COMPANY
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Nuttall



ONE
**GREEN DUCK
BELT**
SELLS ANOTHER

A well-known Kansas City manufacturer (name on request) states:

"We were so favorably impressed with the first Green Duck Belt that we have purchased another."

Green Duck Belts stay soft and pliable, and do not get sleek or slip on the pulleys as we have observed in other canvas belts.

If you have a belting problem — driving or conveying—Green Duck will solve it.

Write for samples and prices.

The Allied Belting Co.
GREENVILLE, OHIO



are pleased to advise that Mr. Dow's temporary address is 308 Bush St., San Francisco.

Mr. Dow was practically raised in the brick industry, at one time having been engaged in the manufacture of clay ware at Columbus, Ohio. Later he entered the clay machinery field and joined the Stevenson organization in 1919.

Needless to say, he has had a world of experience in the manufacture of brick, tile, etc. Since coming with the Stevenson Company, he has concentrated more or less and in fact in the last year has practically devoted the major portion of his time to sewer pipe problems, fitting himself for the west coast territory where he will be required to render to the manufacturers a service beyond that incorporated in representing a machinery line.

The Stevenson Company propose that Mr. Dow assist the manufacturers wherever possible in overcoming their manufacturing problems and in a general way, make himself useful to the trade as well as to the Stevenson Company.

**NEW GELATIN ENABLES FOREMAN TO CUT OUT
THREE FANS**

The new improved form of Gelatin recently placed on the market by the Atlas Powder Co. is reported from all sections where it has been used as giving extraordinary results. Not only in its all-around efficiency as an explosive, but in respect to the negligible amount of fumes evolved.

One foreman advises that "his men are strong for the new Gelatin as they have cut down on the number of sticks to the hole and cut out three fans as gas don't bother at all."

Another, a resident engineer on a large tunnel operation, reports that, "his men could return to work in 12 to 18 minutes, while with old style Gelatin it required at least 30 minutes before the men could return, and then they could not stay."

In addition to these advantages, the manufacturer of this new explosive advises, that it is extremely high in water resistance and also, practically perfect in plasticity—two properties that are of extreme importance in most underground operations, where wet work is often encountered and where loading in upward or pitching holes is necessary so frequently.

The Westinghouse Electric & Manufacturing Co. recently issued Leaflet 2390-A, describing the Type E Engine-Driven Alternating-Current Generators. In this leaflet the construction of these generators from 50 to 3,000 kv.-a. is illustrated and described.

These generators are applicable to all prime movers, being suitable for direct connection to steam, gas and oil engines, or slow speed horizontal water-wheels.

The Westinghouse Company has also issued Leaflet 3477-B, which is descriptive of the Hot Spot Indicator for transformers. The device is illustrated with photographs and wiring diagrams showing how the indicator functions and how it is located in the transformer.

Notice has recently been received of the removal of the Link-Belt Company's Pittsburgh branch office from their old quarters at 1501 Park Building, to their new and more commodious offices at 335 Fifth Avenue. Mr. T. F. Webster, manager of the Pittsburgh office, says that larger space and the more convenient location was imperative because of the extraordinary volume of business transacted during the past year and which promises to remain in full swing at least for the coming fiscal year.

The Towmotor Company, Cleveland, are enjoying some good business, both export and domestic, and are now making shipments to London and to Port Louis, Mauritius. Among recent purchasers of Towmotors are: The Torben-son Axle Co., Andrews Steel Co., the Goodyear Tire & Rubber Co., and Ball Brothers Co., Muncie, Ind., the last-named firm having increased their fleet of Towmotors to ten.

The Hadfield-Penfield Steel Co. are furnishing the equipment for the Denver Tile & Clay Co., Denver, Colo., consisting of a 10 ft. pan, No. 233 Auger Machine, No. 304 Pug Mill mounted on steel frame, No. 342 Rotary Automatic Cutter, fans and other equipment for a 16 ft. waste heat dryer including the requisite number of electric welded cars.

Whitehead, Emmans, Ltd., Montreal and Hamilton, Canada, are now the Canadian agents of the Philadelphia Drying Machinery Company.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

Economic Conditions as a Guide to Business

EVER SINCE this nation has had the opportunity of witnessing business inflation and depression follow rapidly on the heels of one another, business men have been more interested in the causes and effects of business cycles. Those of the executive class especially are taking up the study of economic phenomena as a definite and essential part of their work.

Owen D. Young, chairman of the board, General Electric Co., says: "If we did not think statistics were a real help in working out business policies, our company would not appropriate thousands of dollars year after year, to maintain a special department to study statistics. We don't do it for fun; we know it pays."

No individual can do much to control the business cycle but if he recognizes its importance and studies the current statistics of trade he can do a great deal to protect himself from loss during periods of disastrous fluctuations. He can stop guessing to a large extent and form his policies on the sounder basis of business fundamentals.

The chart or curve invariably figures as an essential part of these studies because of its effectiveness in quickly and clearly conveying facts and comparisons to the average mind. A chart or curve is, of course, merely a picture of statistics.

Statistics, particularly those pertaining to one's own line of business are of utmost value. These should be obtainable thru the proper trade associations. This one service alone, if adequately handled on the part of the trade association, makes a membership well worth while to the executive who can properly interpret statistics thus received.

Statistics of related industries are also essential and serve as a guide to the every day perplexities of business. These can be obtained from the Government, usually.

It seems that not every one has the proper appreciation of the value of statistics which deal with businesses other than his own. For example, to take a long shot view: The senior in the course of ceramic engineering at any university, should be interested in mar-

ket conditions in cotton, corn, grain, copper, and so forth. Prices, production and volume of business in these commodities have a bearing on economic conditions in general.

To illustrate—The immediate future outlook for electrical porcelain is not so good when copper is not being produced or sold. Similarly, the opportunity for selling drain tile or hollow tile is not bright when crops are poor or prices low. Therefore, it is unlikely that the electrical porcelain, drain or hollow tile plants will be very busy and the chances for a position in these fields upon graduation are not excellent.

The theme in the above example applies more directly to the business man and the greater his vision and ability, the more statistics will mean to him. There will be less loss and a more helpful industry when clay plant executives more definitely realize their own deficiencies and are more inclined to value economic causes and effects.

Fill in the Government Questionnaire

IN THE CLAY products industry perhaps more than in any other industry, there is a great opportunity for interchangeability of production. A plant manufacturing paving brick one year may be producing face brick the next—or, a concern ordinarily making drain tile may, at another time, turn out hollow building tile as its main product.

For this reason it is very difficult to know whether or not the industry is going forward or slipping backward in its production of any single commodity. A manufacturer whose business is decreasing may not know whether it is due to a falling market or because a neighboring concern recently switched its product and is serving the identical territory, thus cutting into his sales.

In order for a clay products manufacturer to know what the trend is in his branch of the industry, he should have statistics showing the number of plants operating, production of different burned clay commodities, and so forth. This information can be secured only thru Government agencies.

It is imperative that reports including statistics on clay products produc-

tion should be published annually. Were it practical to collect them oftener we would recommend that it be done.

In order for an industry to be fortified so as to adjust its output and prices to demand and thus save violent losses, it is necessary that the Government should be acquainted with the great need for frequent statistics on clay products manufacture. It should be informed of the peculiarities of the industry. Moreover, every clay products manufacturer, be he large or small, owes it to himself and to his industry to fill out faithfully and as accurately as possible the questionnaires sent him by the Government.

Support Standard Size Movement

SOMETIME during the week of June 18, a general conference of common and face brick manufacturers, dealers, architects, contractors, builders, and Federal representatives will be called by the Department of Commerce to consider the adoption of standard sizes of face and common brick.

The standardization of building brick would simplify the design and construction of all types of buildings. It would enable the architect to place openings, bays, chimneys, and so forth, at such points so that there would be a minimum of necessity for cutting brick, thus saving waste, time and cost.

Moreover, the acceptance of the sizes of brick recommended by the Department of Commerce would increase the possibilities of masonry design to highest practical value. It would permit widest range in bonds and mortar joints.

By helping the architect, the builder and consumer are directly benefited. The builder has less difficulty in construction and the consumer saves money because the work is simplified.

The manufacturer who conforms to the standard sizes of brick not only does the public a benefit but also widens the opportunity for serving his trade in the most satisfactory manner. The movement to adopt standard sizes of common and face brick, is an excellent one and should receive the unanimous endorsement and support of all common and face brick manufacturers.

Strike for Closed Shop in East

**Labor Threatens Shut Down of Plants Serving New York Unless Employers Consent to Unionize Plants
—May Mean Halt of New York Building Activity**

EVERY DAY in which the building activity of the country continues the question of labor becomes more and more serious. Even now, there are not nearly enough men available to produce the amount of clay products required by the country.

Labor, which is not slow to take advantage of the power which a shortage gives it, is seeking to capitalize on this scarcity. In New York, a movement to unionize the workers in the brick plants is being aided tremendously by the fact that there are not enough laborers to satisfy the requirements of the manufacturers. At a time when building is enjoying almost unprecedented prosperity, the United Brick & Clay Workers' Union is making its bid to unionize the workers in the Hudson River plants. Should employers fail to agree to the terms of the union men, an attempt will be made to stop the production of brick, thereby calling a halt to the progress of construction in Gotham.

Hudson River Uses Many Men

The labor elements are striking the clay industry at a particularly vulnerable point because the Hudson River manufacturers employ a greater amount of labor than plants of equal capacity in other parts of the country. Much of the work is done by hand, requiring a large amount of skilled and trained labor to maintain the required capacity. This labor is therefore not so easy to supplant which greatly enhances the chances of success for the labor unions.

That the situation is quite serious and that there is a possibility of the unions having their requests granted, will be realized upon reading the following Dow Service report on the situation:

"If common brick is the life-blood of building the New York construction industry is being strangled.

Labor Shuts Down Big Plants

"At a time when the supply of this most basic of all building commodities is at its lowest stage of supply and demand is at its highest flood Chicago labor agitators forced the shut down of New Jersey's largest plant supplying New York and vicinity and closed the biggest single establishment in the Hudson river brick manufacturing district, the Washburn Co. at Glasco, the main source of brick supply for this city. Promises were made at the same time that all the Hudson river plants would follow suit.

"As at Sayreville, where the Sayre & Fisher Co.'s plant is located, no issue was made of wages, hours or conditions of labor at the Washburn company's plant. The point of contention is the demand upon the part of the labor leaders that all brick plants supplying the New York market be unionized forthwith.

Want Closed Shop in New York District

"The demands followed voluntary wage increases to brick plant workers by the Sayre & Fisher Co. amounting to ten per cent. of their former wage in March. Similar increases have been made by brick manufacturers to their employes. Labor's demand is that all brick manufacturing plants on the Hudson river and Raritan rivers, supplying New York with brick shall henceforth be on a closed shop basis.

"The last previous attempt was made by Samuel Parks, in 1904, to force a closed shop on employers. He was a labor

leader who ended his days in prison, a preceptor of the more recent Robert P. Brindell. His demand included the unionizing of all the Hudson river brick plants as well as the establishment of the closed shop principle in the building material dealers' yards in New York. In that way only, he contended, could labor retain full control of all building construction in New York. He would thereby have a whip hand over the contractors by exercising control over the supply of basic building materials to the job. As well, he figured, he could control the volume of building construction months ahead of demand, by controlling output of building material supply by merely calling strikes for one reason or another, thus to hamper output.

Manufacturers Can't Organize for Protection

"The brick manufacturers of the Hudson river and the building material dealers of New York were permitted in those days to organize to protect themselves against influences of that kind. There is no such organization permitted today and when the building material yard laborers demanded \$3 more a day, just recently, they got it. When the brick barge captains demanded an increase and the brick handlers wanted a chance to earn \$25 a day, they got it from the manufacturers. Their easy success encourages the demand for the long sought for unionization of the brick plants of the Hudson and Raritan with the rich power such an achievement would place in the hands of an organization of workers of the New York building construction industry.

"At the end of April \$349,872,000 worth of work was actually under way in the New York metropolitan district. It had taxed brick supply to the practical point of exhaustion pending the gap, two weeks in extent, between the actual draining of old brick supply and the arrival of the first of the 1923 manufacture. Following a protracted strike, there would be no immediate reserve supply. Brick manufacture stops in October. A two months' fight in an under supplied labor market would so greatly curtail brick supply as to make next year's prices far beyond present levels.

Brick Manufacturers Back to Wall

"The brick manufacturer and the building material dealer, the financier and the building contractor were lining up with their backs to the wall at the latter end of the week of May 20 with the Sayreville and Hudson river brick manufacturers and the New York building material dealers prepared to meet this greatest of post-war building industrial emergencies with emergency measures."

From the above report it is evident that labor becomes more independent and more arrogant as it increases in importance. Its demands are more insistent as its power increases. This is especially true in the industry along the Hudson river where labor plays such an important part and where the general application of machinery to supplant labor has not been practiced.

Machines Must Supplant Men

Now, this teaches an important lesson, the answer to which will be found in this issue of Brick and Clay Record, in the description of the Los Angeles Pressed Brick Co.'s plant. The Hudson river controversy shows clearly that the clay industry must become independent of labor as much as is

possible. This can only be done by making machines do the work of men. A machine is always preferable to a human because it is consistent whereas a human is a variable factor. There have been very few instances where mechanical substitutes did not reduce costs in addition to reducing the amount of labor required.

There are only a certain amount of men in the United States to do the work that must be done. Immigration laws have barred our gates against the entrance of new hosts of labor from foreign countries. There are not enough men in the country now to produce all the material that is required, every year the demand upon industry increases, and since there is no new labor coming into the country, the output will constantly grow more inadequate to supply the demand. The only solution is to increase the capacity of every man. Naturally, there is only one way in which this can be done and that is thru the installation of machinery and equipment which will take the place of men.

EMPLOYMENT IN BRICK PLANTS GAINS

Increases in employment are constantly being noted in industries on which figures are available. The brick and pottery trades, especially, have shown big increases in employment. Comparing April with March, 19 of 43 industries show increases in employment, the greatest being in the automobile, brick, carriage, saw mill and petroleum industries. 29 of the 43 industries show increased payroll totals, brick and carriages leading. Iron and steel, with a slight increase in employment, show a decrease of 2.6 per cent. in total earnings.

PAVING BRICK PUBLICITY STARTED

The advertising campaign of the National Paving Brick Manufacturers' Association, which has been in course of formation for the last several weeks, will start with the June issues of national publications. Page space in 17 trade and business publications has been taken, and a like amount in a

large number of college publications. The program, as previously announced, is designed largely along educational lines, and the selection of the publications that will carry the "pave with brick" message has been made with much care with this end in view. Altogether 37 firms are participating in this program, and their names, where occasion and space will permit, will be used. The advertising itself has been created with attention to the class the particular publications cater to. The message that is more technical will be told in the strictly technical papers, and the message that is in line with the strictly educational will go into those papers that reach the laity.

QUESTIONNAIRE ON CLAY PRODUCTS

The Bureau of Census, Department of Commerce, recently distributed Form No. 408, a questionnaire on the production of all kinds of clay products.

The Government desires that the continuity of records be undisturbed and, therefore, is requesting that every clay products manufacturer record his figures for the year 1922. Manufacturers who have not received Form 408 are invited to write Brick and Clay Record for a copy.

PRESSED BRICK COMPANY IN WISCONSIN

The Stanley Red Pressed Brick Co. has been incorporated in Stanley, Wis., with a capital of \$25,000, by L. L. Houstad, J. J. Long and others, it is reported.

ARGUMENTS IN BRICK RATE CASE HEARD

Oral arguments in the General Brick Case, 10733, were made May 10 by representatives of perforated common brick manufacturers, Chicago common brick manufacturers, sand-lime brick manufacturers and hollow tile manufacturers. C. R. Hillyer, speaking for the manufacturers of perforated common brick, objected to the exclusion of that product from the benefits of the common brick rates recently established

The cost of a pavement is the cost of CONSTRUCTION PLUS the cost of MAINTENANCE

PAVEMENT is either an asset or a liability. Saddling a community with a pavement that demands constant and expensive maintenance is not economy. A road is "improved" only when it is built for endurance which will last the bonds.

NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION
ENGINEERS BUILDING CLEVELAND, OHIO

MODERN economical and construction calls for an "ABC" pavement. Have you the full details and reasons for this pavement in your files? Complete specifications readily furnished upon request.

VITRIFIED PAVING Brick OUTLAST THE BONDS

Bring Out-door Endurance In-doors

IN the factory or industrial plant wherever heavy shop-trucks travel, wherever loads are dumped unceremoniously and wherever acid or grease may be spilt, there is just one pavement—*vitrified paving brick*. It does not rut, it does not crumble, it does not dust up, it does not absorb grease or hold moisture, it does not disintegrate under acids. Slightly higher in first cost, that narrow margin is actually offset many times by extra years of service, low upkeep and continual satisfaction. Suitable specifications for any service on request.

NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION
ENGINEERS BUILDING CLEVELAND, OHIO

VITRIFIED PAVING Brick for industrial pavements

There's one paving surface that water-seals ties and cross-rods, resists wear and tear and permits easy repair—it's asphalt-filled, vitrified brick.

The foundation can be concrete, crushed rock, slag or gravel but the surface must be asphalt-filled brick. Brick, because brick alone gives the enduring resistance which modern traffic necessitates—Asphalt because it absorbs the impact of the cars passing over track-joints, leaves each brick a unit easily removable when track-repairs are required and at the same time protects ties, tie-rods and road bed against surface water.

Typical specifications on request.

NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION
ENGINEERS BUILDING CLEVELAND, OHIO

VITRIFIED PAVING Brick

Three Types of Advertisements Which Are Being Used in Trade, Business and College Publications by the National Paving Manufacturers' Association.

because, he said, the perforations were made for reasons of manufacture and that such brick were known to the trade as commons, came into competition with commons and should be regarded as such. C. A. Shank, for the National Brick Co., Chicago, spoke in favor of the elimination of the perforated brick. The material from which the Chicago common brick was made, he said, would not permit it to be perforated because it would not then be strong enough to prevent breakage either before or after burning. The differential on perforated brick, he stated, should not be limited to hauls not exceeding 150 miles.

Inclusion of the sand-lime brick should be made clear, J. S. Palmer of the Sand-Lime Brick Association, said. He stated that it always has been included in the description of common brick, altho from four to five per cent. of these brick are used for facing purposes.

In behalf of the hollow building tile manufacturers, E. B. Wilkinson stated that the hollow building tile men did not object until the amendments proposed would, if adopted, hurt them.

* * *

BRICKLAYER TRAINING SCHOOL PLANS

Plans for the development of the bricklayers' schools thruout the country are nearing completion, according to Ralph P. Stoddard secretary-manager of the Common Brick Manufacturers' Association. Next move will be the calling of a conference of brick interest factions at an early date, probably in Cleveland, to complete the details for this important program. The startling figure of 45,000 bricklayers short in the country at this time has inspired national, state and local associations identified with the building industry to send representatives to this conference.

One of the features of the meeting will be the address of Prof. E. A. Briggs, of the Cleveland Board of Education, one of those responsible for the promotion and development of the Bricklayers' School in Cleveland, who will tell how the school was conceived here; how it has been strengthened alike by building trades employers, the educational authorities and the local union, to the point where it is considered the foremost enterprise of its kind in the country at this time.

Chief object of the conference will be to formulate a program of bricklayers' school organization that can be laid before every community in the United States and Canada where there is a shortage of bricklayers, with the object of reducing this tremendous shortage of skilled labor.

* * *

C. B. M. A. MEMBERS WANT CONVENTION IN CALIFORNIA

Most important of questions to come before the board of directors of the Common Brick Manufacturers' Association of America, for decision at its mid-year meeting in Cleveland, Ohio, in June, will be whether the annual convention next February shall be held on the Pacific Coast.

Ballots have been distributed from association headquarters, and these have been coming in rapidly in the last two weeks. They show a strong tendency on the part of both eastern and western manufacturers to give the Coast manufacturers the opportunity to stage the convention there. In fact, statements made by leaders in the industry and those who are doing much for the promotion of association work tend to show that the manufacturers do not look upon the next convention so much as a pleasure trip as they do from an educational viewpoint. Moreover, they believe that it is due the Coast manufacturers to permit them to handle the big event of the year in their vicinity as a mark of appreciation by the rest of the country's manufacturers for what the Coast operator is doing to further brick propaganda.

* * *

REFRACTORIES SIMPLIFICATION PROGRESSING

In response to the request of prominent manufacturers and users of sleeves, nozzles and stoppers required in steel mak-

ing, the Division of Simplified Practice of the Department of Commerce called a meeting of all interests concerned on May 21. The American Foundrymen's Association had adopted six nozzles, nine sleeves and one stopper as standard at its convention on October 17, 1918, but these standard types and sizes have not been widely recognized thruout the steel industry, as is shown by the fact that there are now close to 300 types and sizes of these refractories on the market. This great variety complicates production, hinders efficient distribution, and retards service until now both the producers and the consumers favor applying simplified practice,—or the elimination of the superfluous and excessive varieties, and the retention of those types and sizes in proven greatest demand.

It was recommended the next meeting be held Monday, 10 a.m., June 18, 1923, at Room 704, Commerce Building, Washington, D. C., and all present pledged themselves to do all possible to arouse the interest in this possible avenue for the elimination of waste that would insure a large representation of the steel and the refractories industries on that date.

Those attending the May 21 meeting were:

Walter H. Kelley, Refractories Engineer, Bethlehem (Pa.) Steel Co.; C. N. Ring, Chairman of the A. F. A. Committee on Refractories, Ohio Steel Foundry Co., Lima, Ohio; James R. Allan, Member of A. F. A. Committee on Refractories, International Harvester Co., McCormick Works, Chicago, Ill.; W. A. Hull, member of A. F. A. Committee on Refractories, U. S. Bureau of Standards; W. G. Owen, Haws Refractories Co., Johnstown, Pa.; Charles C. Bacon, Ross-Tacony Crucible Co., Philadelphia, Pa.; H. P. Smith, Jos. Dixon Crucible Co., Jersey City, N. J.; Arthur J. Jackman, Vesuvius Crucible Co., Swissvale, Pa.; Wm. A. Durgin, Chief, Division of Simplified Practice, Department of Commerce; Ray M. Hudson, Technical Assistant, Division of Simplified Practice, Department of Commerce.

* * *

TO GATHER PAVING BRICK STATISTICS

Distribution of statistical blanks to its members, in order that a comprehensive interchange of information on stock, production, orders and distribution of paving brick may be available for the entire association, will be started at an early date by the executives of the National Paving Brick Manufacturers' Association, Cleveland, Ohio. The work awaited the approval of the Department of Commerce, and this O. K. was received from Washington recently.

* * *

BRICK IN THE LINCOLN HIGHWAY

Construction work on the Lincoln Highway is going along every year at an increasingly rapid pace. During 1922 there were completed 243.5 miles of new construction. Of these 15.13 were brick and 56.91 miles were concrete. The balance was gravel and permanent earth grade. The following table shows the different types of materials used in the construction of the Lincoln Highway up to May 15, 1923:

	Miles
Concrete	578.66
Brick	128.76
Bituminous Macadam	327.80
Macadam	287.10
Graded Gravel	1,189.22
Natural Gravel	62.10
Graded Earth	404.39
Natural Earth	108.60
Paved City Streets	218.50
	<hr/> 3,305.13

* * *

COMPARATIVE TESTS ON BRICK

Results of comparative tests of clay, sand-lime and concrete brick masonry made by the Columbia University of New York have now been made public and published in book form. A copy of the booklet may be obtained from the secretary, Columbia University, New York City. The price is 50 cents. These tests were reviewed some time ago in Brick and Clay Record.

Over \$72,000 Saved in Wages!

Comprehensive Plant Betterment Campaign Brings Staggering Results

A feature story of the efforts and achievements of the Los Angeles Pressed Brick Co. which reads like an interesting novel. In this story Brick and Clay Record gives its readers an opportunity to study the methods used by this progressive Pacific Coast concern to eliminate waste in labor, cut costs and improve quality of product.

This remarkable story should serve the clay products industry in many ways:

- 1. It should above all point out the possibilities existing for cost reduction and improved methods.*
- 2. It should inspire every manufacturer always to be on the alert for new ideas in equipment and methods which might be adapted for use in the clay plant.*
- 3. It should inspire to new effort and give nerve and enthusiasm to him who has allowed his plant to drift along.*
- 4. It should suggest new ideas, methods and equipment for more efficient operation of the clay products plant.*

A Romance in Industry

Being the Story of How the Los Angeles Pressed Brick Co. Converted Its Brick Yards into Brick Factories, Making Almost Unbelievable Savings in Production Cost as Well as Increasing Capacity and Quality of Product

AMERICAN INDUSTRY is full of romance, of thrilling stories having to do with the startling experiences of intrepid men who overcame vast obstacles in their fight to advance their business. Most of this romance, however, has been associated with the railroad and steel industries. One does not generally think of romance in connection with the clay products industry and yet Brick and Clay Record here tells the story of a clay plant which is well-nigh chimerical in its astounding revelations of progress and achievement. Naturally enough, the plot of this story is laid in a section of the United States where romance has had its greatest inning.

Remarkable Activity at Los Angeles

Several times during the past three years Brick and Clay Record has told its readers something of the remarkable plant betterment activity going on at the three plants of the Los Angeles Pressed Brick Co. A number of persons allied with the clay products industry have returned from visits to the alluring Golden State with enthusiastic reports of the remarkable transformation taking place on the plants of the above mentioned company. The editors of Brick and Clay Record reluctantly admit that when they first learned of the reconstruction work and improvements being carried on at these plants, the program outlined to them seemed so stupendous that they could not resist considering the whole matter in the light of the much used phrase that "it was because of the climate."

Big Developments Completed

But after watching the work progress for the past two years and having just recently spent weeks on the Coast actually observing the immense project of reconstruction on the eve of its completion, the editors must admit that developments which two years ago were no more than scraps of paper have become an accomplished fact.

In the rush of the present building boom it is only the keen-eyed business man that has the vision to look into the future with an idea to reduce manufacturing costs. Such a man, we are glad to find in the clay products manufacturing business in the person of Howard Frost, president of the Los Angeles Pressed Brick Co. He has converted what was a brick yard into a most modern brick factory. The establishments under his direction do not resemble typical clay plants at all. Men are giving way to machinery—wood is giving way to steel, glass and brick. Man power is not tolerated where machines can do the work.

6 Men and Machinery Supplant 25

An illustration which shows how completely men are being supplanted by machinery is afforded by the clay handling department of the Los Angeles plant. Here, by the introduction of equipment unique in the clay industry, a mere half dozen men do more work than was formerly accomplished with 30 men by hand methods. Five men were eliminated by the use of electric power and a considerable saving was effected in fuel and repair costs. An overhead carrying system did away with the labor of five more men while poidometers and kiln handling equipment took the place of six men. And so on. This recital could be continued almost indefinitely as in nearly every department and at every turn men gave way to machinery.

It must be remembered that it is more difficult to reconstruct an old plant and bring it up-to-date, than to build an entirely new one. This is true because new and modern equipment must be adapted to conditions and space which were not originally designed for the use to which they are to be put. So it is Brick and Clay Record's claim that the achievements of this company are remarkable and appear even more extraordinary when it is realized that these improvements have been made during a time when the production and sales of this company broke all records. And yet not a

single working day was lost in production.

Save \$72,000 in Payroll Annually

The ambitions and attainments of the great and wondrous state of California are typified in the story of the accomplishments in plant betterment of the Los Angeles Pressed Brick Co. It has been figured that one of the plants alone will save on its payroll the staggering amount of \$72,000 a year, as a result of 3½ years of effort to reduce labor costs. This may appear as an extravagant and sensational statement but it is nevertheless true. We are confident that clay products manufacturers will be keenly interested to know just how the Los Angeles Pressed Brick Co. went about this huge task, and what was done.

It is apparent that the complete proposed remodeling, much of which was of innovational character, necessitated a definite and comprehensive outline along which changes could be worked out. To determine and work out such a plan, there was required a great deal of study and foresight. Careful study, revision, and investigation of leading plants were necessary. As a result of this method of planning, all of the Los Angeles Pressed Brick Co.'s plants are today nearing the most advanced and successful practices of the industry.

Employ Five Ceramic Graduates

Mr. Frost showed his excellent judgment by surrounding himself with good and competent men who aided him in carrying out these big plans. At present the company employs five ceramic graduates and this number will be increased to seven in July. A spirit of perfect harmony and cooperation exists between the entire factory organization and the technically trained men. The general superintendent, while not a ceramic graduate is a man of considerable technical ability. And a superintendent of one of the factories has had several years of training in ceramic engineering.



This Was a Slow and Expensive Method. Contrast These Views With Those Following Which Show the Clay Storage With Its Modern Steel Construction Operated by a Monorail Crane. There Is No Hand Labor Involved There.

Figure 1. Two Views of the Old Clay Storage Shed Formerly in Use at the Los Angeles Plant of the Los Angeles Pressed Brick Co. This Clay Storage Was a Typical Old Fashioned Type Where the Clay Was Shoveled From Railroad Cars Into the Bins by Hand. From the Storage the Clay Was Shoveled Into Small Cars, by Hand Also, and Pushed Into the Plant.

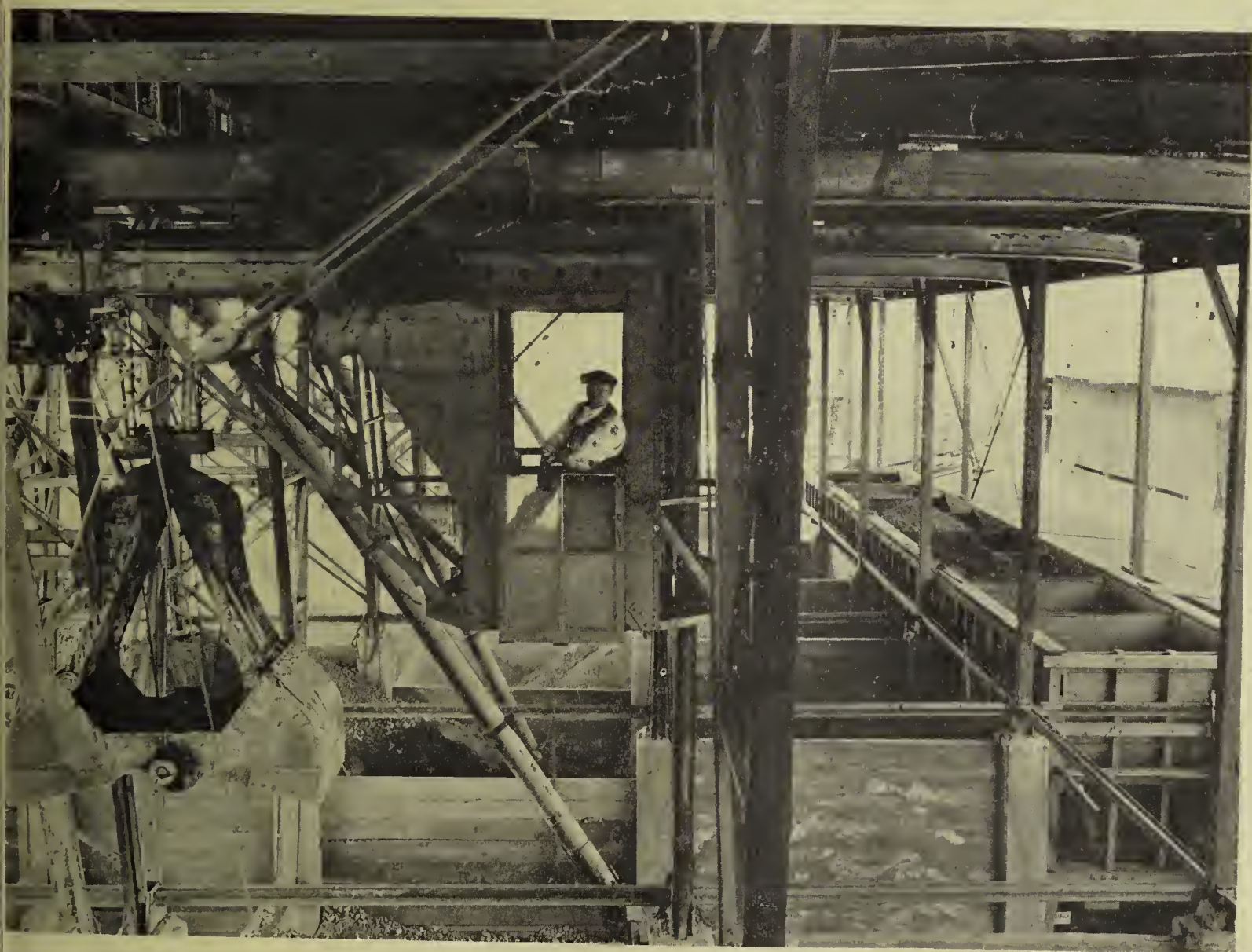


Figure 2. A Close-Up View of the Clay Storage Showing the Pawling & Harnischfeger Monorail Crane and Clam Shell Bucket Which Is Used to Handle the Clay. Notice the Eight Concrete Bins in Which the Different Types of Clay Are Stored.



This One Man Handles 500 Tons of Clay Per Day

AS a result of the installation of the P & H Electric Monorail Hoist, and re-arrangement of bins and conveyors, one operator now handles and directs the placing of 500 tons of clay per day.

The re-arrangement of the plant,—the substitution of mechanical handling for hand methods, was accomplished without loss of a single working day and at a time when a heavy demand for the product existed.

Big Saving in Wages

The annual saving in wages is not difficult to estimate, and at the same time the increased handling speed and control of operations have increased the output.

Over the center of each of eight concrete bins a monorail beam is suspended from the roof trusses, and connected by switches to a common track running along one side of the bin shed.

From these bins, the clay is taken by the hoist to 25-ton hopper-bottom bins placed over tracks. All day long the hoist operator travels over the various spur tracks and out to the main track, picking up load after load and depositing in the collecting bins.

As in other industries, the dependability,—quality of design and construction, and economy of operation and maintenance,—make P & H Hoists particularly suited to the up-to-date clay products plant.

P & H material handling engineers are ready to consult with executives in the substitution of mechanical handling for hand labor and reduction of labor costs.

Crane and Hoist Division

Pawling & Harnischfeger Co.

Established in 1884

3859 NATIONAL AVE., MILWAUKEE, WIS.

NEW YORK
PITTSBURGH
PHOENIX
LOS ANGELES
SALT LAKE CITY

CHICAGO
PHILADELPHIA
DENVER
SAN FRANCISCO
PORTLAND

ST. LOUIS
BIRMINGHAM
NEW ORLEANS
ATLANTA
SEATTLE

P & H HOISTS



P & H Electric Hoist with 1 1/4 yd. grab bucket—Los Angeles Pressed Brick Co.

P & H Gasoline or Electric-driven Shovels have also successfully met the hard long service conditions of brick and clay companies. Ready to start instantly—no watchman or fireman required—mounted on the famous P & H Corduroy Traction they are easily maneuvered over any soil. Among the users are:

Celite Products Co. Los Angeles, Calif.
Clay Products Co. of Amer. New Hope, Pa.
Gladding McBean. San Francisco, Calif.
Klein Brick Co. Chaska, Minn.
Lincoln Clay Products Co. Lincoln, Calif.
Southern Clay Mfg. Co. Chattanooga, Tenn.
Tuttle Brick Co. Middletown, Tenn.





Figure 3. Another View of the Clay Storage Showing the Arrangement of the Monorails and the Manner in Which the Switches Open and Close. This Installation Is an Innovation in Clay Handling for Clay Plants.

Mr. Frost, Mr. Cake, the general superintendent, and others of the company have visited more than 50 of the leading clay products plants from the Pacific to the Atlantic coasts in order to gain the widest possible knowledge of improved equipment and methods. Much recent literature dealing with the production of materials from which some idea might be gleaned and put to use in their own plant, was scanned. In this connection, Mr. Frost in his own words says, "Due credit is given Brick and Clay Record thru its editorial and advertising columns for many of

the advanced improvements installed by our company." The best ideas from all the sources investigated were then incorporated in the Los Angeles Pressed Brick Co.'s plants.

Cost Reduction Was Reason for Modernizing

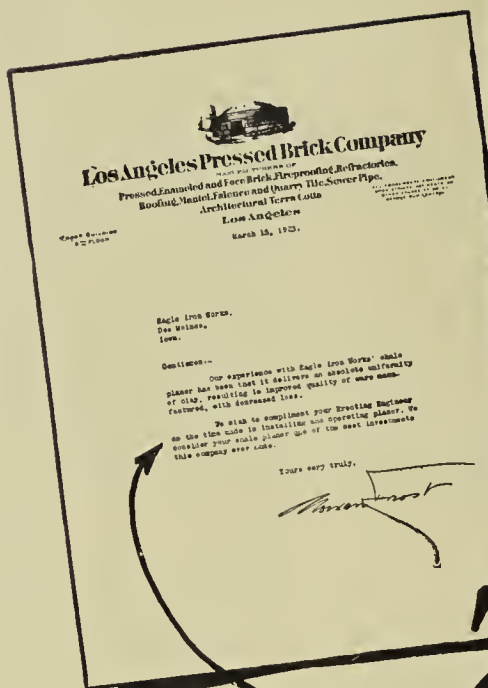
The whole object of the reconstruction work was not primarily to increase production but to reduce costs. In selecting equipment, Mr. Frost's first concern was not, "How much does it cost?" but "How many men will the new machinery or system dis-

place?" He was willing to spend money to make money. Results already attained prove the soundness of his judgment.

Increased production came as a natural result of the improvement and 1922 proved to be the banner year in the history of the company. In one case the daily output doubled and in another tripled with less men than before.

A bit of history regarding the company would probably not be amiss.

The Los Angeles Pressed Brick Co. was founded in 1887 by the late Charles



*"One of the best
 investments this
 company ever made"*

The letter above of Mr. Howard Frost, President of the Los Angeles Pressed Brick Company speaks for itself.

The Los Angeles Pressed Brick Company are ready at any time to show their EAGLE SHALE PLANER to brother clay plant operators, and to show them just what it is doing, or if you will write us or our branch office, we will gladly tell you where Eagles are being used in other clay pits throughout the country. We want you to see one in operation; to learn how costs are being reduced and production increased.

Write today

EAGLE IRON WORKS, Des Moines, Iowa, U. S. A.
 L. AULMANN, 1541 No. Hobart Blvd., Los Angeles, Calif., Pacific Coast Representative



216-217

EAGLE Shale Planer



Figure 4. This Chain Bucket Elevator Takes the Clay from the Preliminary Crusher and Dumps It onto a Conveyor Belt 11½ Feet Above Ground Level.



Figure 5. 20 Inch Crushed Clay Conveyor Belt and Automatic Tripper. The Clay Is Discharged Into Long Pipes Which Spout It Into Any Desired Part of the Storage Shed or Clay Bins.

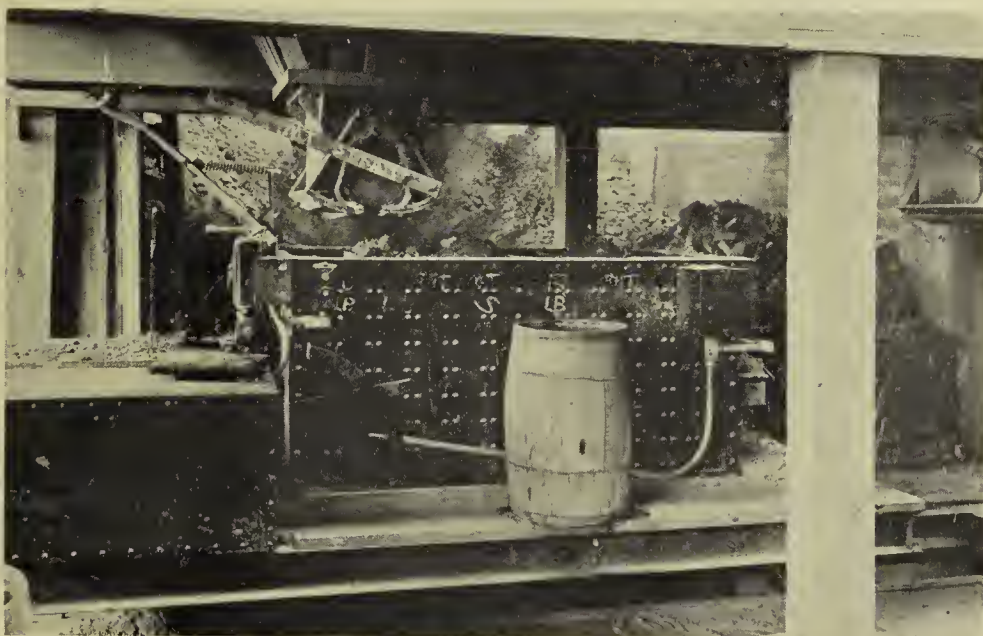


Figure 6. Electrically Operated Compartment Gathering Car. There Are Six Compartments in This Car Which Operate Directly Underneath the Hoppers Containing the Different Varieties of Clay. The Operator Takes a Certain Portion of Clay From Each Hopper and Drops It Into the Proper Compartment in the Car.

H. Frost, a pioneer in the manufacture of dry press brick in Chicago. From one small plant with four kilns located at Cleveland and College streets, Los Angeles, covering only three acres and employing less than two score men at full capacity, the company has grown to three large plants with a total of 52 kilns having an annual capacity of 150,000 tons. The plants include approximately 500 acres of factory sites, including adjacent clay lands; in addition the company owns about 1,800 acres of valuable clay properties in San Diego, Orange, San Bernardino and Kern Counties. About 550 men are now employed. The company also has a substantial interest in one of the leading face brick plants in the northern part of the state.

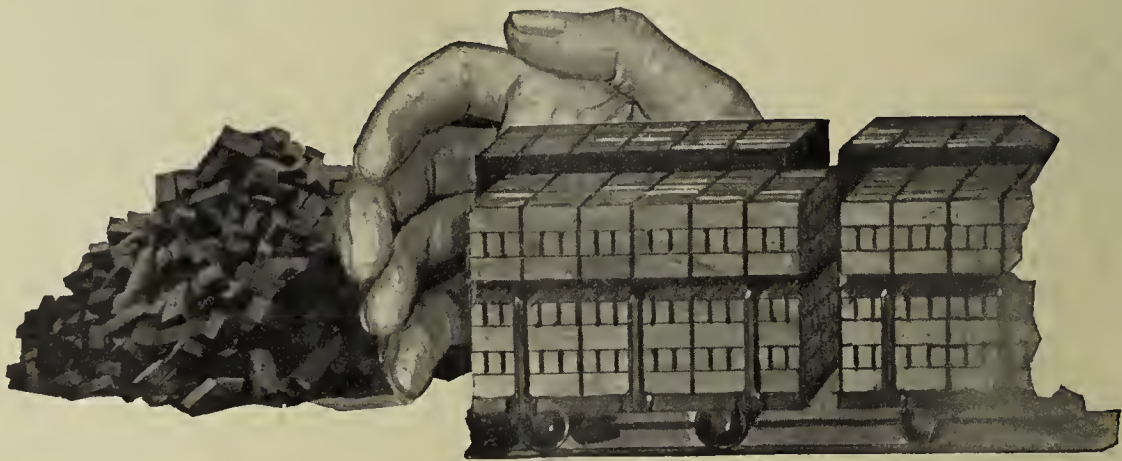
Vast Market Served by Company

Originally, the market of the Los Angeles Pressed Brick Co. was confined to Southern California territory. It has now extended far beyond this. The company has not only kept pace with the marvelous growth of the city of Los Angeles and of Southern California, but has developed a market for some of its products in Arizona, New Mexico, Texas, Colorado, Utah, Nevada, Oregon, Washington, Idaho, Montana, British Columbia, Honolulu and Mexico. In most of this territory the company is represented by building material agencies.

The three plants of this company which are located in Los Angeles, Santa Monica and Alberhill, manufacture an unusual variety of clay products. The output of these plants includes:

FACE BRICK: Dry Press, Smooth Wire Cut, "Stippled," Rug and Ruffled Textures, and Enameled Brick.

Screening for Profit!



Saved from the scrap pile!

One thousand brick per day—that used to be scrapped—is saved by using the HUM-MER Process in a well known brick plant.

Here is actual evidence that the uniform texture of "Hum-mer Screened" clay makes the brick more plastic in the wet state; assures a better bond in the green brick; and greatly reduces the waste.

At \$35 per thousand this particular company effected a saving of \$8,750 per year for the 250 days they operate.

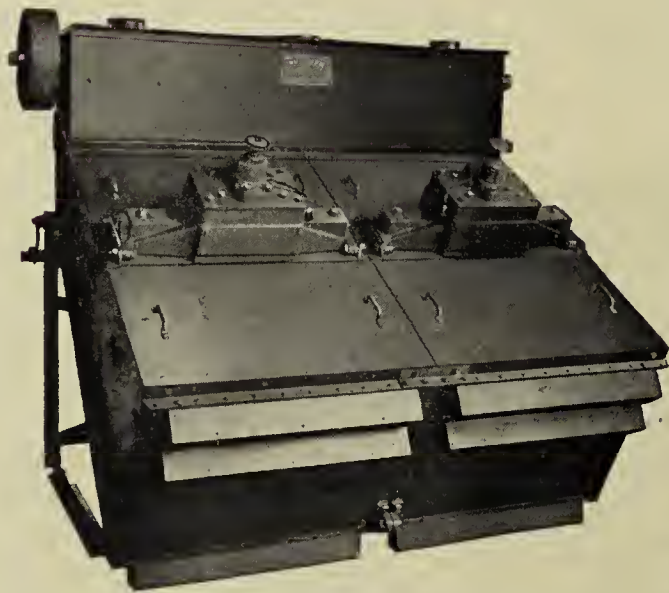
This is only one source of profit obtainable with the HUM-MER. Many producers report increased capacities; increased dry pan output; better quality and appearance of product; and fewer rejections through the use of HUM-MER Electric Screens.

Any clay plant using screened clay can show a greater profit by installing the HUM-MER Process. Let us show you how.

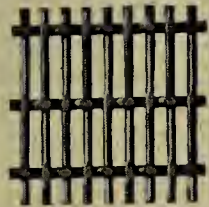
Request Catalogue 45-B

THE W. S. TYLER CO., Cleveland, O.

Manufacturers of Woven Wire Screens and Screening Equipment



Type 31
6-Foot, 2-Surface, Screw Conveyor Feed
HUM-MER Electric SCREEN

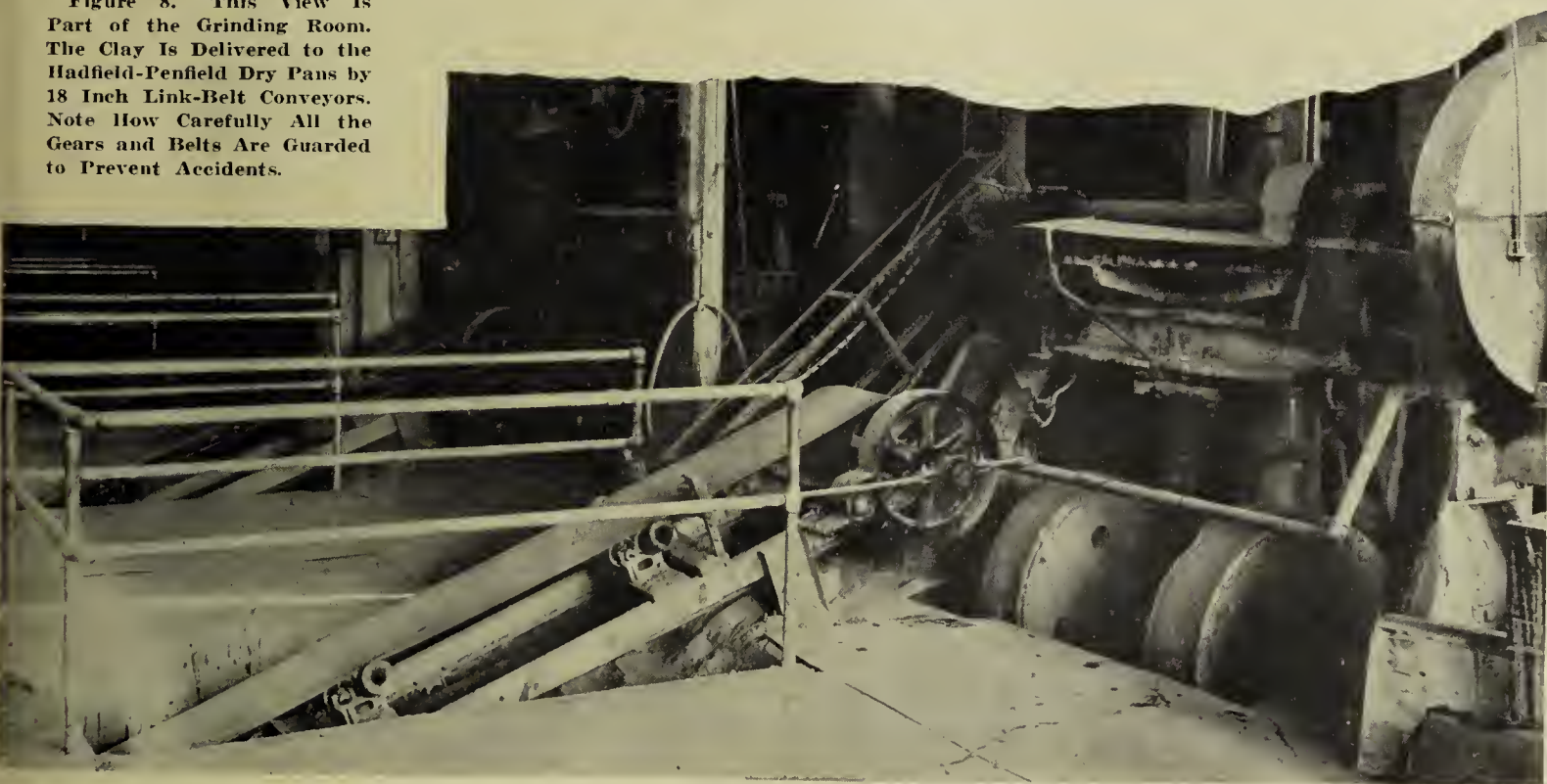


THE LOS ANGELES PRESSED BRICK COMPANY
USE THE HUM-MER *Electric* SCREEN



Figure 7. Reciprocating Feeder Made by Conveyor Equipment Co. It Feeds Clay onto Conveyor Belt from Where It Is Carried to Dry Pan. This Type of Equipment Is Seldom Used on Clay Plants and Presents a New Possibility for Labor Saving.

Figure 8. This View Is Part of the Grinding Room. The Clay Is Delivered to the Hadfield-Penfield Dry Pans by 18 Inch Link-Belt Conveyors. Note How Carefully All the Gears and Belts Are Guarded to Prevent Accidents.



“—There Was Required Considerable Study and Foresight”

The SCHAFFER POIDOMETER

Could not be omitted from the rebuilding plans of the Los Angeles Pressed Brick Company, if their desire to have the most modern and efficient plant was to be realized. Why?

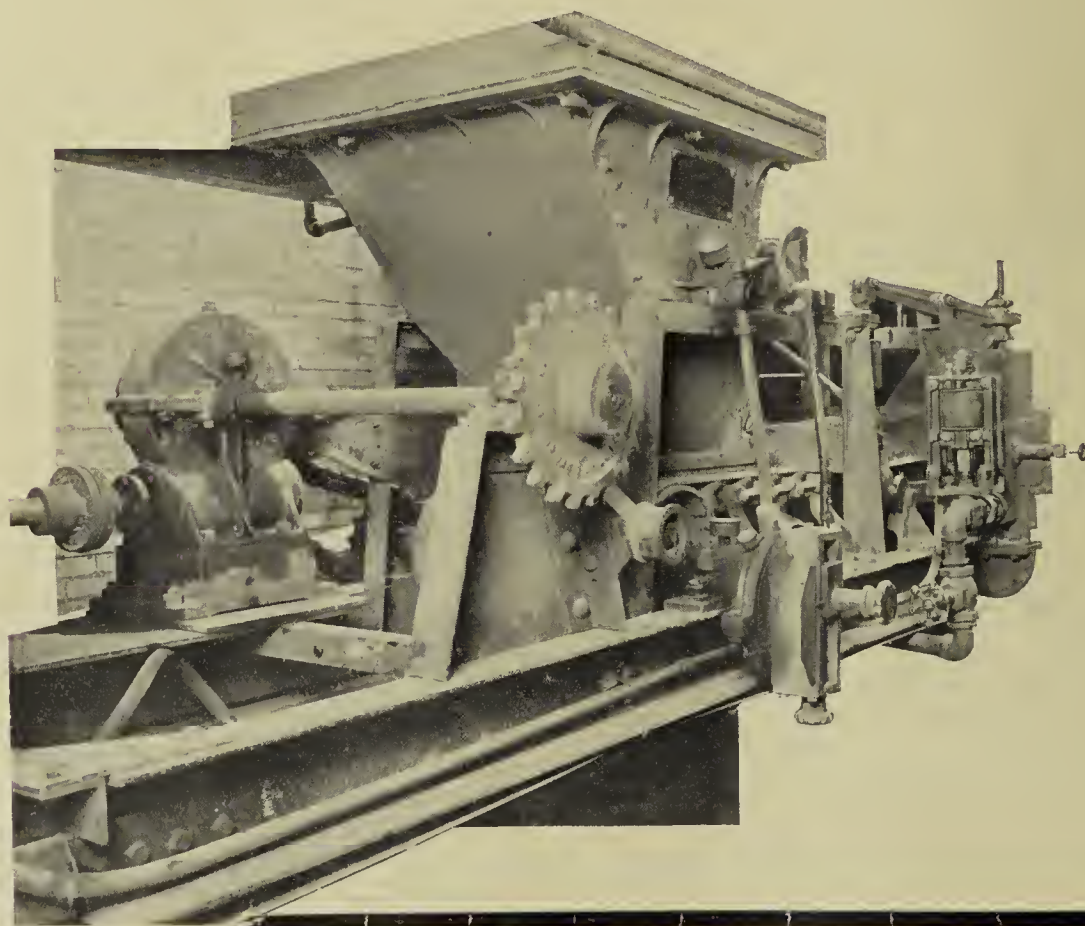
Because the Poidometer substitutes automatic, accurate, mechanical control of mixture of clay and water for changeable, inaccurate human control.

Mr. Howard Frost, president of the Los Angeles Pressed Brick Co., says:

“The clay and water are adjusted manually” and “all subsequent variation in clay feed, water feed, and moisture in the clay is handled automatically by the Poidometer, thus eliminating the services of the usual pug mill operator required by other types of feeders.”

Let us show you what the Poidometer will do at your plant.

SCHAFFER ENGINEERING AND EQUIPMENT COMPANY
2828 Smallman Street PITTSBURGH, PA.



ACTUAL TESTS MADE

at the
LOS ANGELES PLANT
are—

	Moisture in Clay on Poidometer	Moisture in Finished Ware
7:30 a. m.	12.5%	20.7%
10:45 a. m.	11.3%	20.4%
1:00 p. m.	9.9%	20.8%
4:00 p. m.	12.0%	20.7%



(A larger variety than manufactured by any single plant in the United States.)

ARCHITECTURAL TERRA COTTA: In any desired color or texture.

ROOFING TILE. Spanish, Mission, Italian, Granada and Shingle patterns in red. Its beautiful Varicolor tile are produced in Granada and Mission patterns composed of shades of purple, rich golden hues and gun metal, which are harmoniously blended with red shades.

REFRACTORIES: Standard and special shapes in fire brick and hand-molded fire blocks to meet all conditions and requirements. An experienced refractories chemist devotes his entire time to research work and other matters pertaining to the advancement of the product.

HOLLOW TILE: All sizes, from two-inch partition tile up to and including 12x12x12 inch are manufactured, besides the famous Denison Interlocking tile and the Heath 5x8 inch patented hollow tile, both of which are widely used in Southern California.

MISCELLANEOUS PRODUCTS: Including Flue Lining, Chimney Pipe, Runner Blocks, and Drain Tile, all of

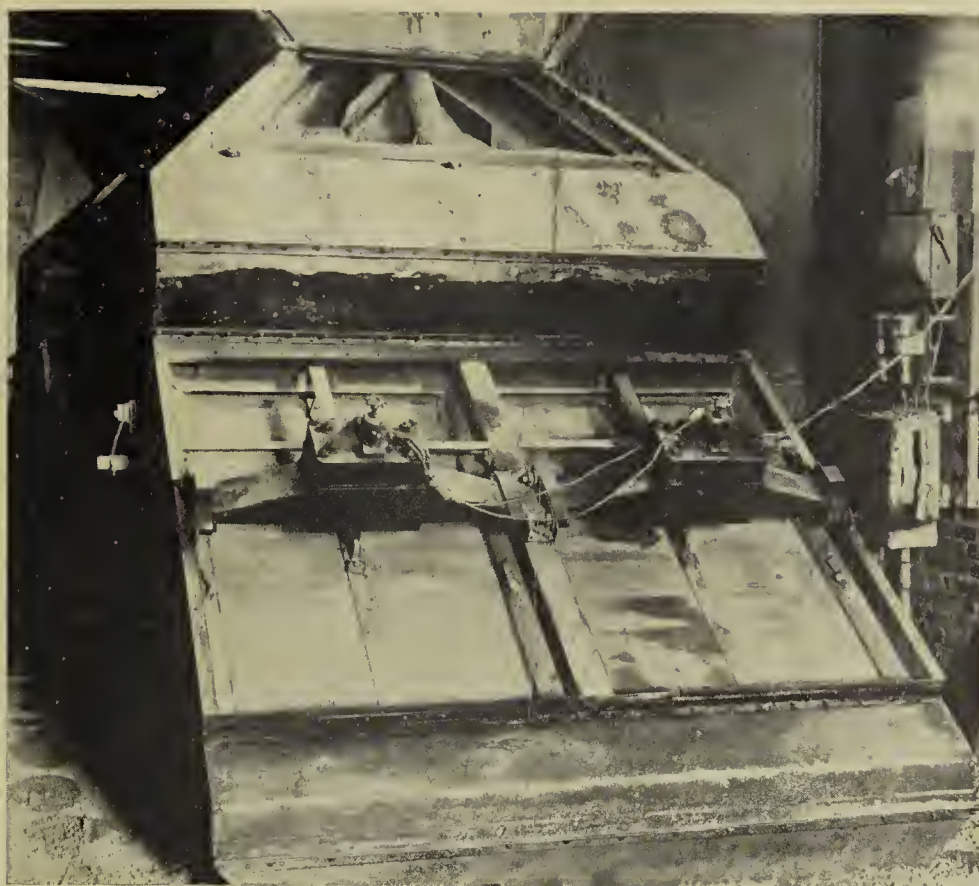


Figure 9. A Tyler Electrically Vibrated Screen Which Mechanically Screens the Ground Clay. The Clay Preparation on the Plants of the Los Angeles Pressed Brick Co. Is Greatly Facilitated by the Use of Mechanical Screens.

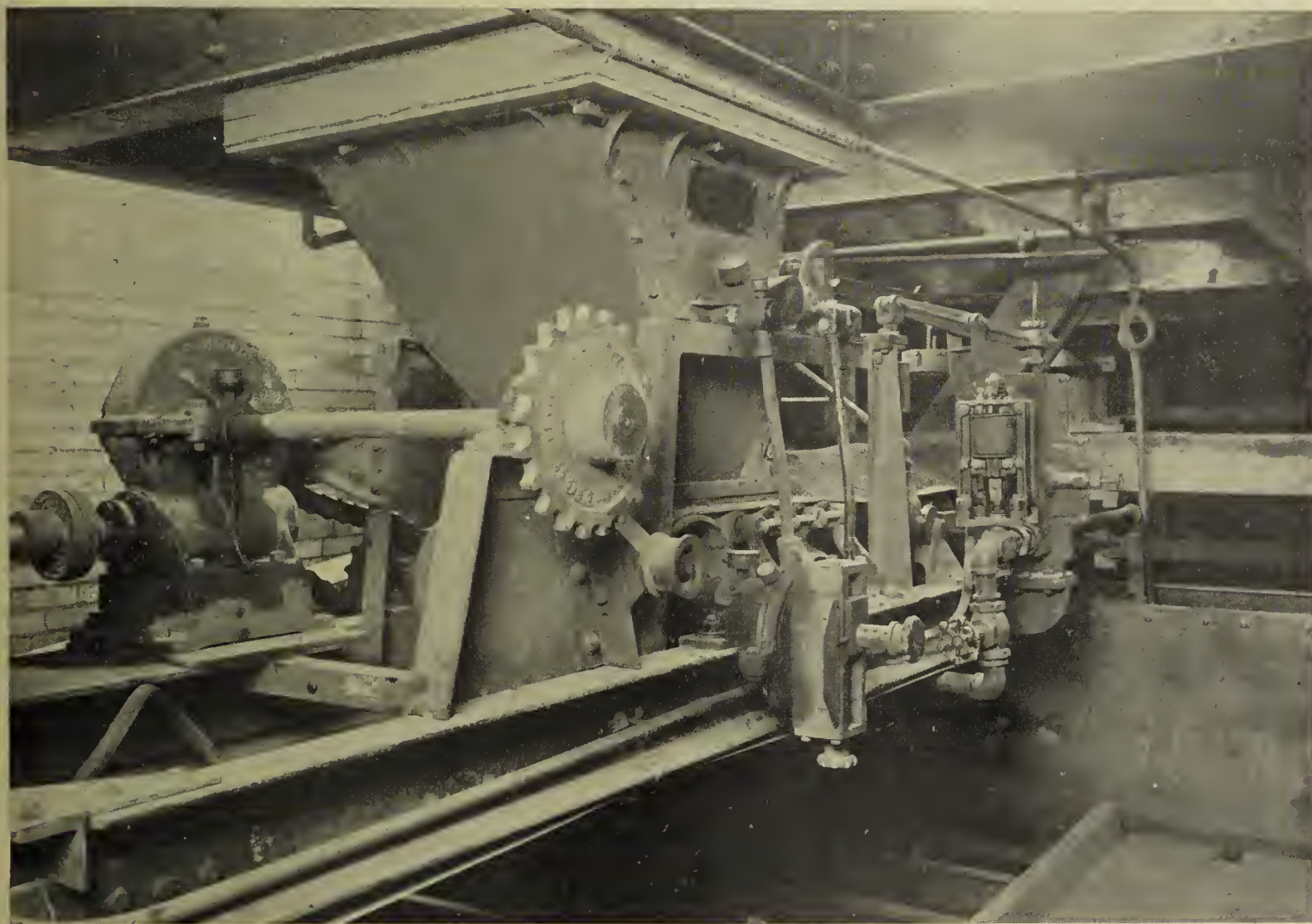
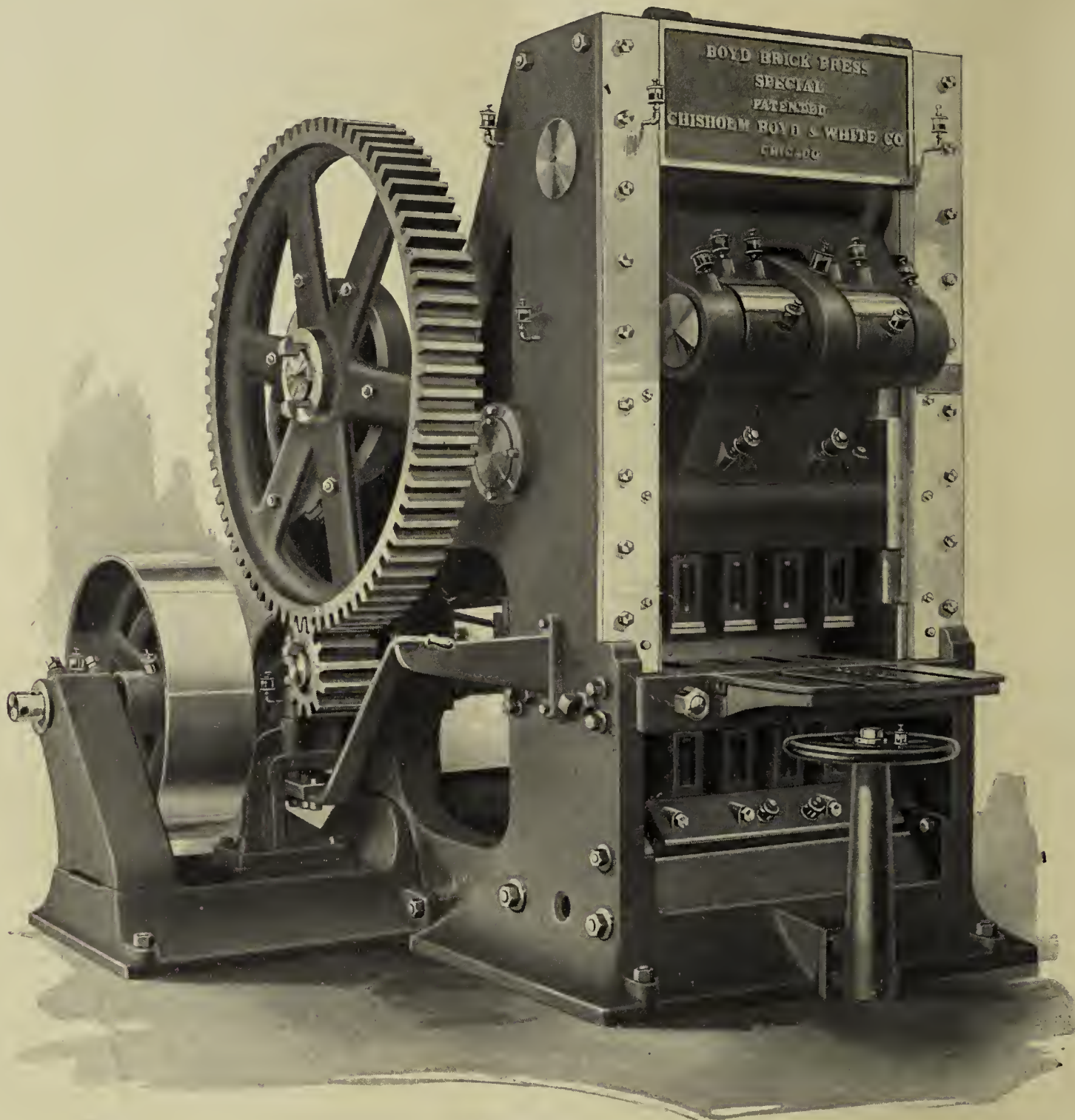


Figure 10. Ground Clay Is Fed Into the Pug Mill Uniformly by Means of Five Schaffer Poidometers of the Type Shown Here. Note the Steel Construction in the Picture. This Is Typical of the Entire Los Angeles Plant.

THE BOYD BRICK PRESS

"Built Up to a Standard—Not Down to a Price"



FOR THE MANUFACTURE OF

Fire brick and shapes from fire clay, magnesite, chrome and other materials. Regular 9" series, large and small 9" series and tile up to 12 x 24 x 4. The only mechanical press that has been successful in the production of pressed brick and large shapes from dead-burned magnesite.

High-grade smooth face brick, round edge face brick, and rough texture face brick without addition of complicated special attachments or scratching devices, and common building brick, from shale, clay and other materials.

Write for Bulletin AB and mention this advertisement.

CHISHOLM, BOYD & WHITE CO.
Office and Works, 57th and Wallace Sts., Chicago, Ill.

ESTABLISHED 1888

Ask Howard Frost Why He Uses Boyd Brick Presses

which are made at the Santa Monica factory.

In the technical descriptions of the plants which follow, Brick and Clay Record will endeavor to give its readers a description of the equipment now used, most of which is new and was adopted, after due consideration and investigation, in preference to the methods which were formerly used.

Los Angeles Plant

Four distinctly different products are manufactured at the Los Angeles plant: face brick, enameled brick, architectural terra cotta, and roofing tile. To manufacture these products, 11 different varieties of clay are used including surface clays and those of refractory nature, buff and white burning.

About one-quarter of the clay used in the Los Angeles plant is shipped from the factory at Santa Monica, a distance of 18 miles. A small percentage of clay is shipped from a distance of 500 miles, while the balance comes from Alberhill, Riverside County, San Bernardino and San Diego Counties, an average distance of a little over 100 miles. A 50 ton carload of clay is unloaded, crushed, elevated and distributed to bins in from 30 to 45 minutes.

Clay Handling System

The clay which is received in hopper bottom cars is dumped into a steel hopper located below the tracks (Figures 2 and 3) and conveyed horizontally ten feet by an apron feeder which feeds the clay in uniform quantities to a single roll crusher. After this preliminary crushing, the clay is elevated by a chain bucket elevator (Figure 4) and dumped upon a 20 inch crushed clay conveyor belt (Figure 5) located 41 feet 6 inches above ground level. By means of an automatic tripper the crushed clay is discharged from this belt into an iron funnel leading into an eight inch diameter portable iron pipe 30 feet long, which can be moved to any part of the concrete bins wherein the clay is stored. A spray pipe inside of this distribution pipe not only keeps down the dust but improves the quality of the clay by preliminary tempering. The clay storage shed is of mammoth size. Its length is 163 feet and width 82 feet. The shed is divided into eight bins which hold the clay (Figures 2 and 3). These bins measure $16\frac{3}{4} \times 15\frac{1}{2} \times 82$ feet, inside measurement. The maximum capacity of each bin is 1,300 tons, thus

making the total capacity of the storage shed 10,400 tons.

Monorail Crane in Clay Storage

From the bins the clay is taken by a three ton electrically operated monorail crane fitted with a $1\frac{1}{4}$ yard grab bucket and is deposited in one of eight steel-lined, 25 ton, hopper bottom bins. The bins are located immediately over a track upon which runs an electrically operated, compartment, gathering and mixing car of two yards capacity. The clay is dropped from the bins into this car. Motive power for the crane is furnished by three 50 horsepower A. C. Motors, while the mixing car is driven

from two to three parts of clay and one of grog. When the car is filled with the required batch or mixture it moves in either direction to one of the $2\frac{1}{2}$ yard steel hoppers located beneath and between the rails. A reciprocating feeder (Figure 7) delivers the clay to an 18 inch belt conveyor, which feeds the clay at uniform speed and quantity into dry pan (Figure 8).

Grinding Equipment Most Complete

The clay grinding is accomplished by three nine foot dry pans, an 18 inch disintegrator and an eight foot dry pan for tailings. Clay is fed to the dry pans by a reciprocating feeder and pan con-

Figure 11. One of the Chisholm, Boyd & White Dry Press Machines Used to Make Face Brick. There Are Two Dry Press Machines in Use at the Los Angeles Plant.

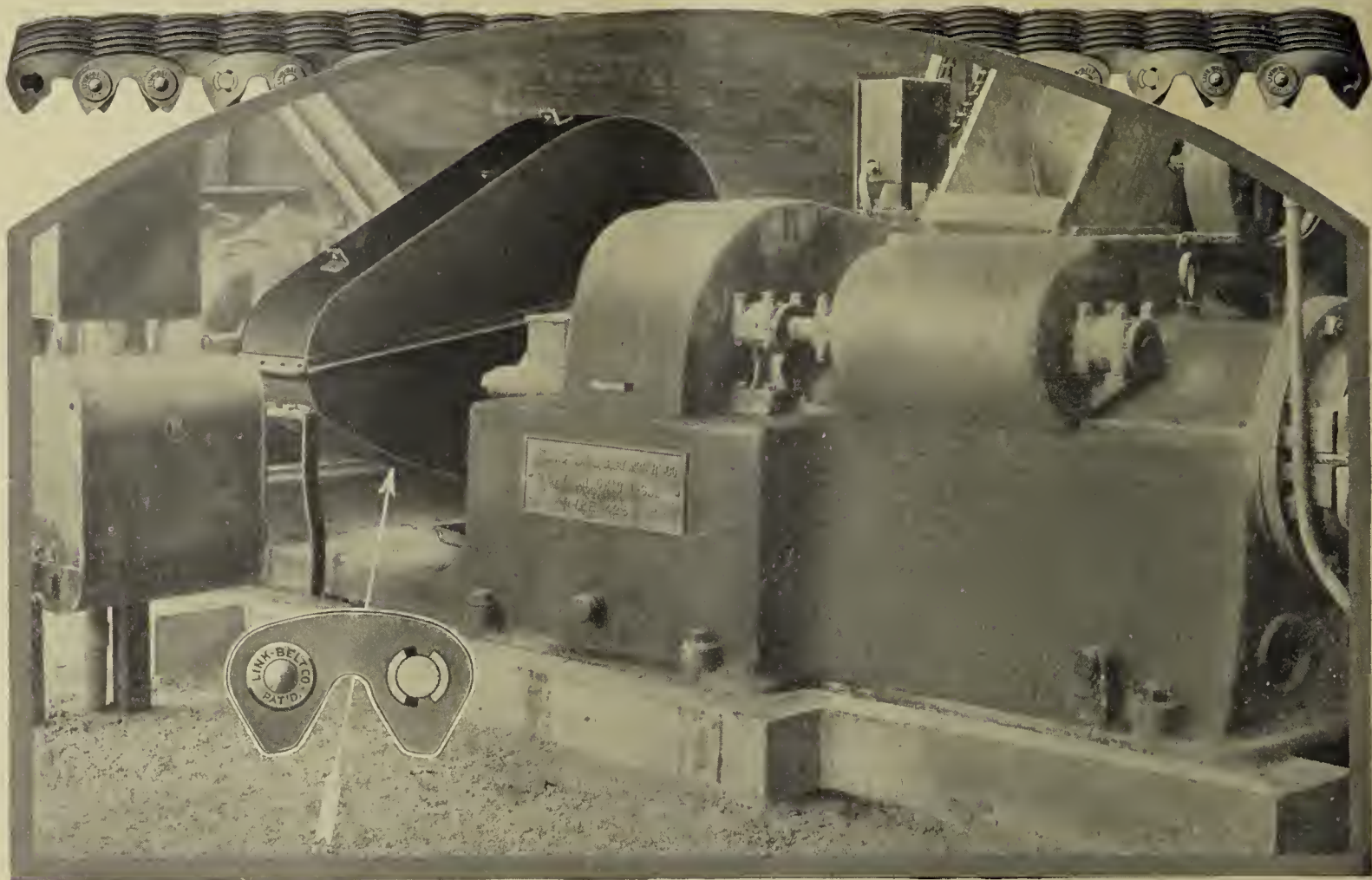


by a $7\frac{1}{2}$ horsepower motor and the doors of the car are opened and closed by means of a one-half horsepower motor.

There are six partitions in the above mentioned mixing car and the mixes are used in multiples of six (Figure 6). Practically all of the products manufactured at the plant are composed of

veyors which are driven from the dry pan shaft by means of sprockets and chain with jaw clutch. The advantage of this system is that the feeder and conveyor automatically stop when the dry pan stops.

The dry pans are operated by 50 horsepower slip ring motors with a silent-chain drive. The disintegrator is



Making 6000 bricks an hour without vibration

The March 20th issue of the Brick and Clay Record carries an account of the new plant of Gloninger & Co., Vanport, Pa. In that account was a very interesting statement.

We quote:

"Each machine is driven by a 75 H. P. motor and Link-Belt Silent Chain Drive. Here is a wonderful installation. There is so little vibration in the brick machine that a five-cent piece placed on edge, on barrel of machine, stood there without a tremor, although the machine was pushing out a perfectly formed column of clay at the rate of 6000 bricks an hour."

**[Reduction of friction means reduction of cost
Reduction of cost means increase of profits]**

An equation made possible by Link-Belt Silent Chain.

Send for our Data Book No. 125, a handbook on silent chain practice.

LINK-BELT COMPANY

PHILADELPHIA

New York . . . Woolworth Bldg.
Boston 9 . . . 49 Federal St.
Pittsburgh . . . 335 Fifth Ave.
St. Louis . . . Central Nat'l Bank Bldg.
Buffalo . . . 745 Ellicott Square
Wilkes-Barre . . . 2d Nat'l Bank Bldg.
Huntington, W. Va. . . Robson-Frithard Bldg.

H. W. CALDWELL & SON CO., CHICAGO

CLEVELAND

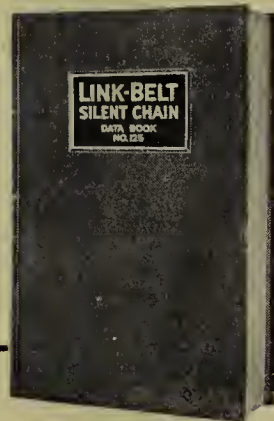
Detroit . . . 429 Kirby Bldg.
Kansas City, Mo. . . 4210 Woodward Ave.
Seattle . . . 308 Elmhurst Bldg.
Portland, Ore. . . 820 First Ave., S.
San Francisco . . . 101 First St.
Los Angeles . . . 168 Second St.
163 N. Los Angeles St.

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Denver . . . Lindrooth, Shubart & Co., Boston Bldg.
Louisville, Ky. . . Frederick Wehle, 321 Starks Bldg.
New Orleans . . . C. O. Hintz, 504 Carondelet Bldg.
Birmingham, Ala. . . S. L. Morrow, 720 Brown-Marx Bldg.
Charlotte, N. C. . . J. S. Cothran, Com'l Bank Bldg.
Canadian Link-Belt Co., Ltd.

INDIANAPOLIS
Toronto and Montreal
DALLAS, TEXAS, 709 Main St.



LINK-BELT COMPANY
910 S. MICHIGAN AVENUE CHICAGO

Please send postpaid—Link-Belt Silent Chain Data Book No. 125.

Name _____

Firm _____

Street _____

Town _____

State _____

RETURN THIS COUPON 1234

LINK-BELT

SILENT CHAIN DRIVES

driven by a 30 horsepower induction motor and one 50 horsepower motor drives the four ground clay bucket elevators and ground clay conveying system.

The dry ground clay is mechanically screened thru electrically vibrated screens (Figure 9).

Remarkably Few Men Needed

Up to this point of manufacture a total of four men are required in addition to labor in placing and unloading cars and preliminary crushing of clay, which requires two men for six hours each. They are the following: Mono-rail operator, mixing car operator, and two pan tenders for maximum grinding. This compares with the former method of hand unloading of cars of clay, a wheelbarrow brigade to dry pans and a pan tender for each individual pan. Twenty-four men have been displaced up to this point and a notable improvement has been made in the quality and uniformity of the ware. These men, with the aid of equipment

mentioned above, handle and prepare from 250 to 300 tons of clay daily. This clay is used in the manufacture of wire-cut and dry pressed face brick, terra cotta and roofing tile. While the daily output of the different types of materials varies considerably it is attempted to maintain maximum production at all times. The maximum production in the case of the Union brick machine is 6,000 brick per hour, while the dry press machines turn out as high as 19,000 brick, each, per nine-hour day.

Three Poidometers in Use

The machine room includes steel-lined bins of 30 tons capacity, which deposit clay into three poidometers (Figure 10). This equipment feeds the ground clay uniformly into the pug-mills, at the same time adding the correct quantity of water. Three auger machines, three pug-mills, one Union brick machine and cutters are used in the machine room. Clay is supplied to the Union brick machine by a poidometer which is fed from a steel bin of 50 tons capacity.

In addition, there are located in this machine room two four-mold dry press machines supplied with raw material by automatic mixers (Figure 11).

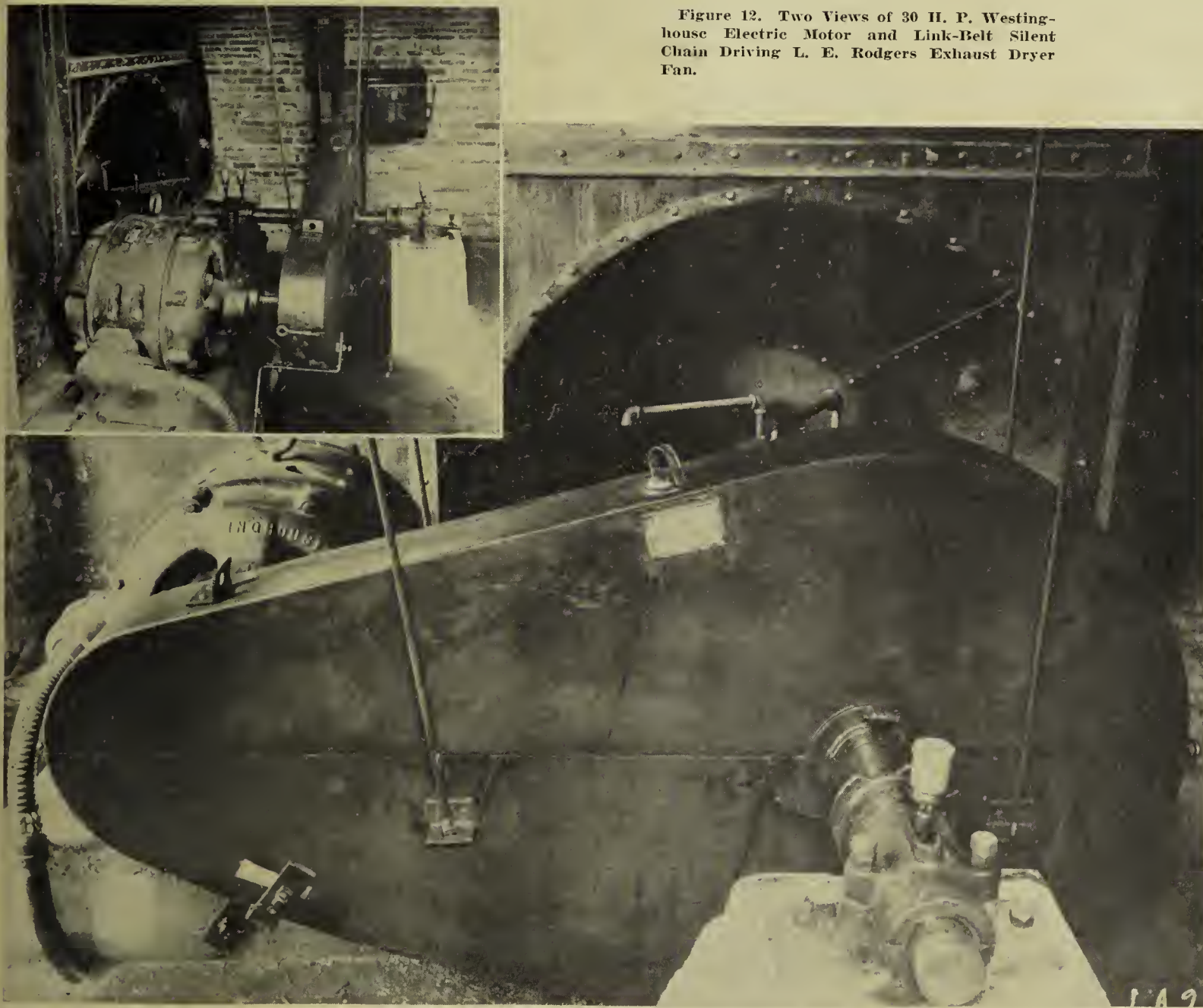
A maximum production of 50,000 face brick in nine hours is handled by only three hackers. All rough texture face brick are set 36 to 40 courses high in kilns. The average burning temperature is equivalent to cone ten and $6\frac{1}{4}$ days are required to burn the brick. The unusually high burning temperature is due to the refractory quality of the clay.

Motors Drive All Equipment

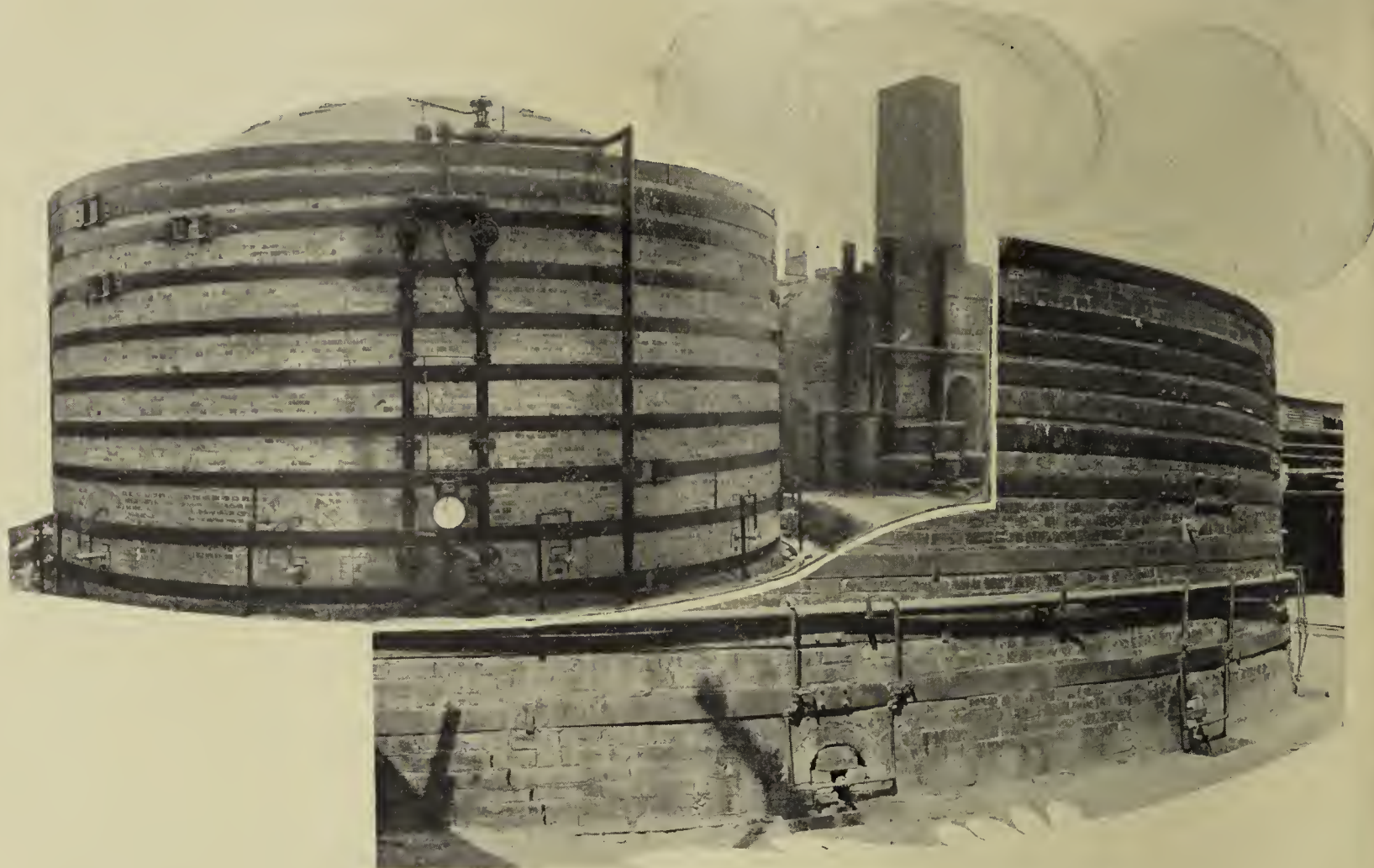
The Union brick machine, an automatic cutter, and a waste clay conveyor of the company's own design are all driven by one 150 horsepower motor. A silent chain drive is to be substituted for the belt and pulley on this equipment. The four-mold dry press brick machines are operated by a 30 horsepower electric motor.

The dry press brick are taken directly to the kiln from the press, set 32 courses high and burned to a maximum

Figure 12. Two Views of 30 H. P. Westinghouse Electric Motor and Link-Belt Silent Chain Driving L. E. Rodgers Exhaust Dryer Fan.

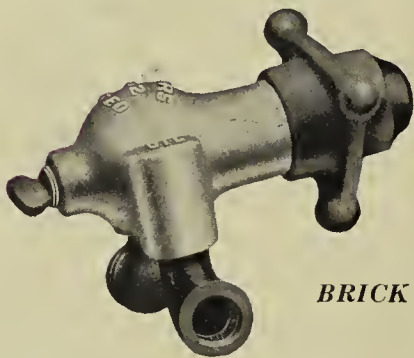


“—There Was Required Considerable Study and Foresight”



***Since 1905—LEADERS
in their field—over 70,000 in use***

***More Heat
for Less***



The results of efficiency tests caused the Los Angeles Pressed Brick Company to discard equipment costing three and one-half times **more** and to re-equip all of their kilns with Schurs Oil and Gas Burners.

Over 1,000 Schurs Burners are now used by this large and progressive plant. (See article in this issue.)

—there is a reason

BRICK BULLETIN No. 11 is a treatise on Oil and Gas Burning Equipment as applied to Clay Burning and is free. Write for your copy to-day

SCHURS OIL & GAS BURNERS

Exclusively the product of

Schurs Oil Burner Company

Established 1905

5334 Santa Fe Ave.

Los Angeles, Cal., U. S. A.

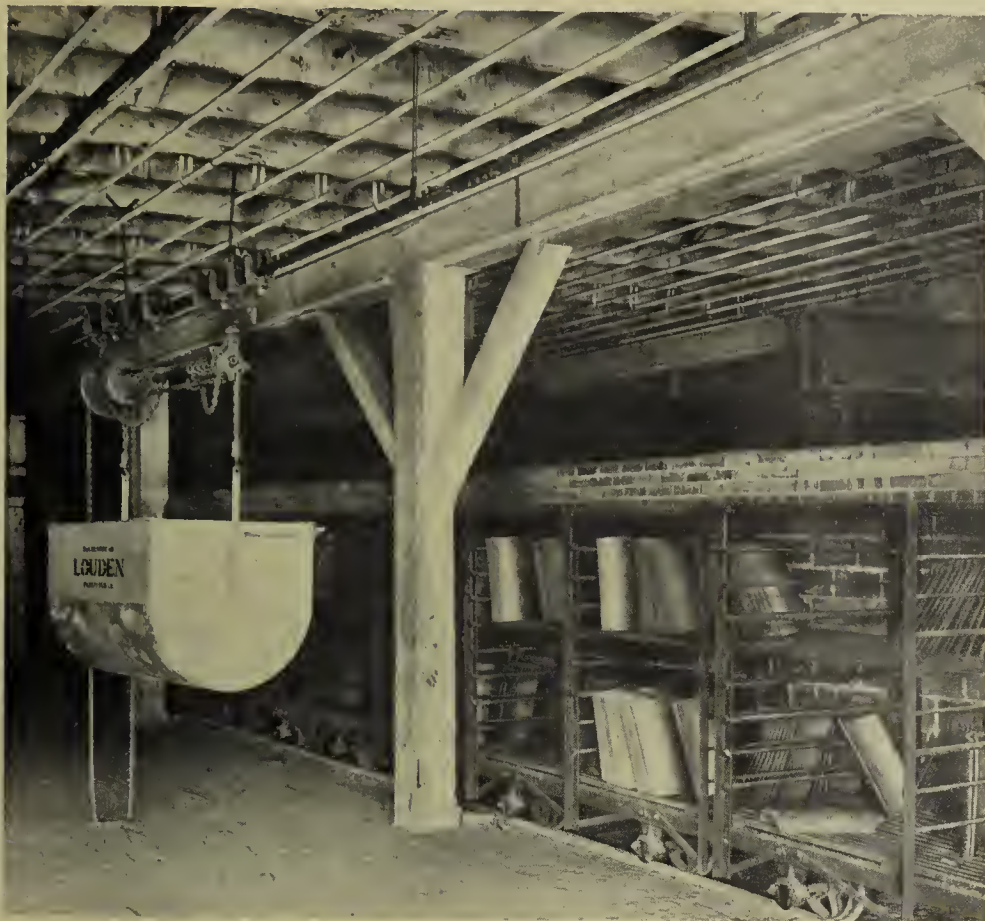


Figure 13. A Louden Overhead Waste Conveyor Equipment With High Speed Hoisting Gear, Used to Transport the Broken Ware from the Dryer to a Bin from Where It Is Conveyed to the Storage Shed. In This Photograph May Also Be Seen a Few Roofing Tile on the Dryer Cars Alongside the Dryer.

temperature equal to cone ten (2,426 deg. F.). The burn is completed in 5½ days' time.

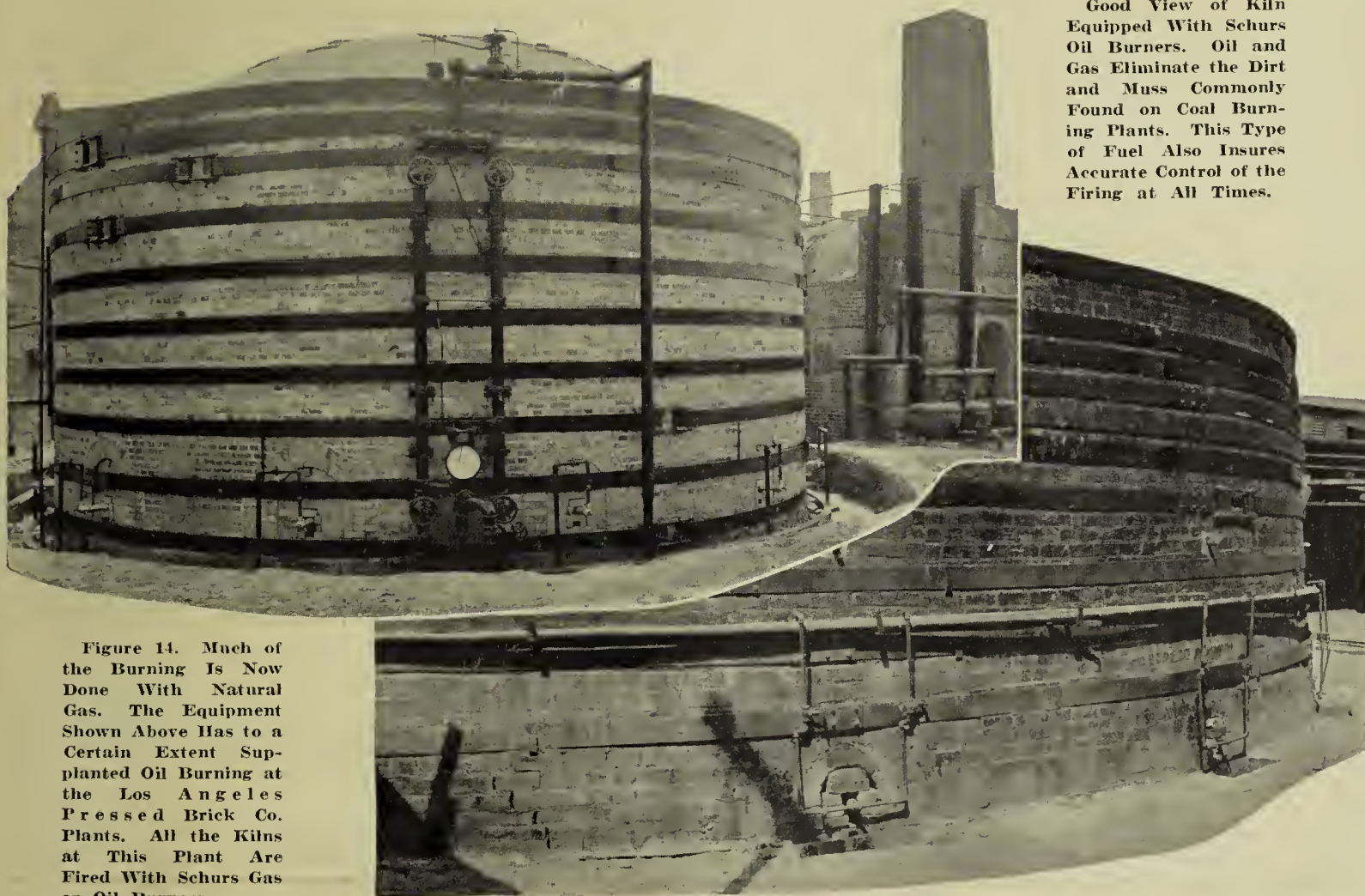
The dryers, which are of original design, consist of one 16-tunnel, single track, waste heat unit, 100 feet long, with capacity for 240 cars; one six-tunnel, double track, waste heat unit, 100 feet long, with 180 cars capacity; and one 16 tunnel, single track steam dryer, 80 feet long, with capacity of 192 cars.

Humidity in Dryer Always Under Control

The waste heat is controlled both from the standpoint of humidity and air circulation (Figure 12). To insure proper control hydrodyks and anemometers are used.

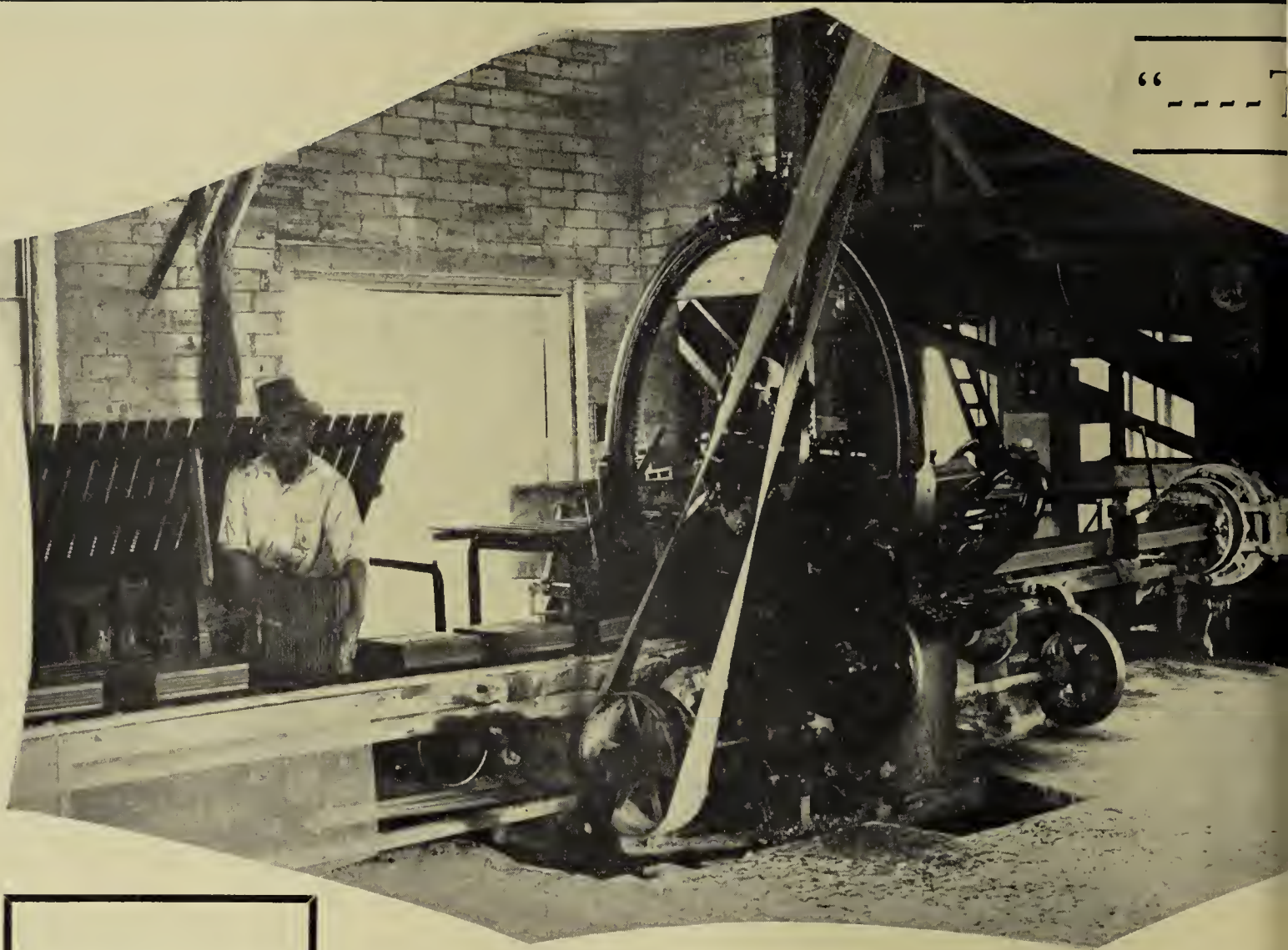
In connection with the dryer operation, a new feature of considerable interest has been introduced. This consists of an overhead waste conveyor with high speed hoisting gear (Figure 13). This conveyor is used to transport the broken ware from the dryer to a bin from which the dryer waste is taken by a monorail grab bucket and deposited in the clay storage shed.

To burn the ware manufactured on this plant, 28 kilns are used; 14 of them are of round down-draft design varying in diameter from 26 to 38 feet. There are also three 25 foot and one 15 foot diameter terra cotta muffle kilns; two 70 x 16 feet rectangular down-draft



Good View of Kiln Equipped With Schurs Oil Burners. Oil and Gas Eliminate the Dirt and Muck Commonly Found on Coal Burning Plants. This Type of Fuel Also Insures Accurate Control of the Firing at All Times.

Figure 14. Much of the Burning Is Now Done With Natural Gas. The Equipment Shown Above Has to a Certain Extent Supplanted Oil Burning at the Los Angeles Pressed Brick Co. Plants. All the Kilns at This Plant Are Fired With Schurs Gas or Oil Burners.



DISINTEGRATORS
GRANULATORS
CRUSHERS
DRY PANS
FEEDERS
PUG MILLS
CLAY GRINDING
and
MIXING
MACHINES

CHAM
BRICK MAKING

Was Required Considerable Study and Foresight”

SO THEY SELECTED A
CHAMBERS
ROTARY CUTTER

Illustration shows the Chambers Rotary Cutter in operation at the Santa Monica plant of the Los Angeles Pressed Brick Company, Los Angeles, California, one of the largest clay manufacturing plants in America.

The selection of Chambers Rotary Cutters, as well as other Chambers Equipment for plants where continuous service and reduced costs are demanded, is due to their demonstrated work and flexibility. CHAMBERS EQUIPMENT MEETS ALL REQUIREMENTS.

CHAMBERS BROTHERS CO.

52nd and Media Sts.

Philadelphia, Pennsylvania.

IBERS

MACHINERY



Rough Going and Continuous Service Make Little Difference to Baker Trucks

BAKER material handling equipment is particularly valuable when help is expensive and hard to get, but the versatility of the Elevating Truck makes it a paying proposition under all conditions.

One of these handy trucks is on the job twenty-four hours every day and pays for itself in the first six months of service. It is equally useful for carrying drying racks, handling fuel between coal pockets and kilns or charging and emptying the kilns.

The Baker can go right into a kiln, slide its platform under a loaded rack or skid, quickly lift its load and carry it to storage or direct to freight car.

Whether you make brick or roofing tile like the Los Angeles Pressed Brick Co. shown above, a Baker Elevating Truck is the most economical method of handling your product.

Write for our fully illustrated, explanatory catalog covering all models.

Baker Industrial Division

THE BAKER R & L COMPANY
CLEVELAND, OHIO

ELECTRIC TRACTORS AND TRUCKS

TRADE-MARK

Baker

GREATER ECONOMY IN MOVING BULK MATERIAL

The Baker Dump Truck effects great economies in handling bulk material such as coal, ashes and waste.

It is furnished with either side or end-dump body of the roll-over type depending upon the nature of the dumping ground.

One Baker Dump Truck, and an operator for each shift, easily replaces two wagons, four horses and four drivers for such work.

Baker material handling engineers are always ready to investigate the working conditions of your plant, and to submit definite recommendations without obligation on your part.

THE BAKER R & L CO.
CLEVELAND, OHIO



At Left—A View of the Pyrometer Room at the Los Angeles Plant Showing the Brown Recording Pyrometers. This Equipment Simplifies the Burning Problem Immensely Because It Enables the Easy Duplication of Results.

Figure 15. At Right—Placing the Thermocouple in the Crown of a Kiln Which Is About to Be Fired. All of the Los Angeles Pressed Brick Co.'s Plants Are Equipped With Brown Pyrometers and Absolute Control Over the Temperature Is Had at All Times.



kilns; six 40 x 6 feet rectangular muffle kilns for enameled brick, and two 26 x 6 feet rectangular muffle kilns for enameled brick.

Natural Gas and Oil Burns Ware

The round down-draft kilns have bottoms with center well hole and radiating flues of hub and spoke type. Some of the kilns also have "T" flues and open bottoms.

A large part of the kiln burning is now accomplished with natural gas (Figure 14), whereas not so long ago oil was used exclusively. When using oil, the air for combustion is obtained from one or more of three air compressors driven by electric motors; one is a 100 horsepower compressor with a capacity of 1,250 c.f.m.; another is 75 horsepower with a capacity of 675 c.f.m.; and a third, 50 horsepower with a capacity of 450 c.f.m. The pressure of the oil is maintained at 40 pounds, while the air pressure is 30 pounds. Approximately 300 burners are required for the gas and oil burning equipment. Correct temperatures are maintained by the use of recording pyrometers (Figure 15).

Portable Fan Speeds Kiln Cooling

A portable fan operated by a five horsepower motor is used to speed up cooling of the kilns. When a kiln containing brick has cooled to a temperature of 1,000 deg. F. or a kiln of roofing tile has cooled to a temperature of 700 deg. F., this cooling fan is placed at

the kiln door. A minimum of 24 hours has been saved by cooling in this manner, while in some kilns the time saved amounts to as much as 48 hours.

The first of two tunnel kilns, 325 feet in length, exclusive of car pusher and cooling vestibule, is now in course of construction. Three periodic kilns had

A large part of the main factory building of the Los Angeles plant, which covers an area of 220 x 260 feet, has already been changed to steel and brick construction. Eventually the entire factory will be so constructed. The ground floor is cement paved, while the second and third floors, which are

Figure 16. This Shows One of Two Baker R. & L. Electric Lift Trucks Used for Unloading Roofing Tile and Face Brick from the Kilns. The Paved Yard Makes These Electric Trucks Very Efficient.

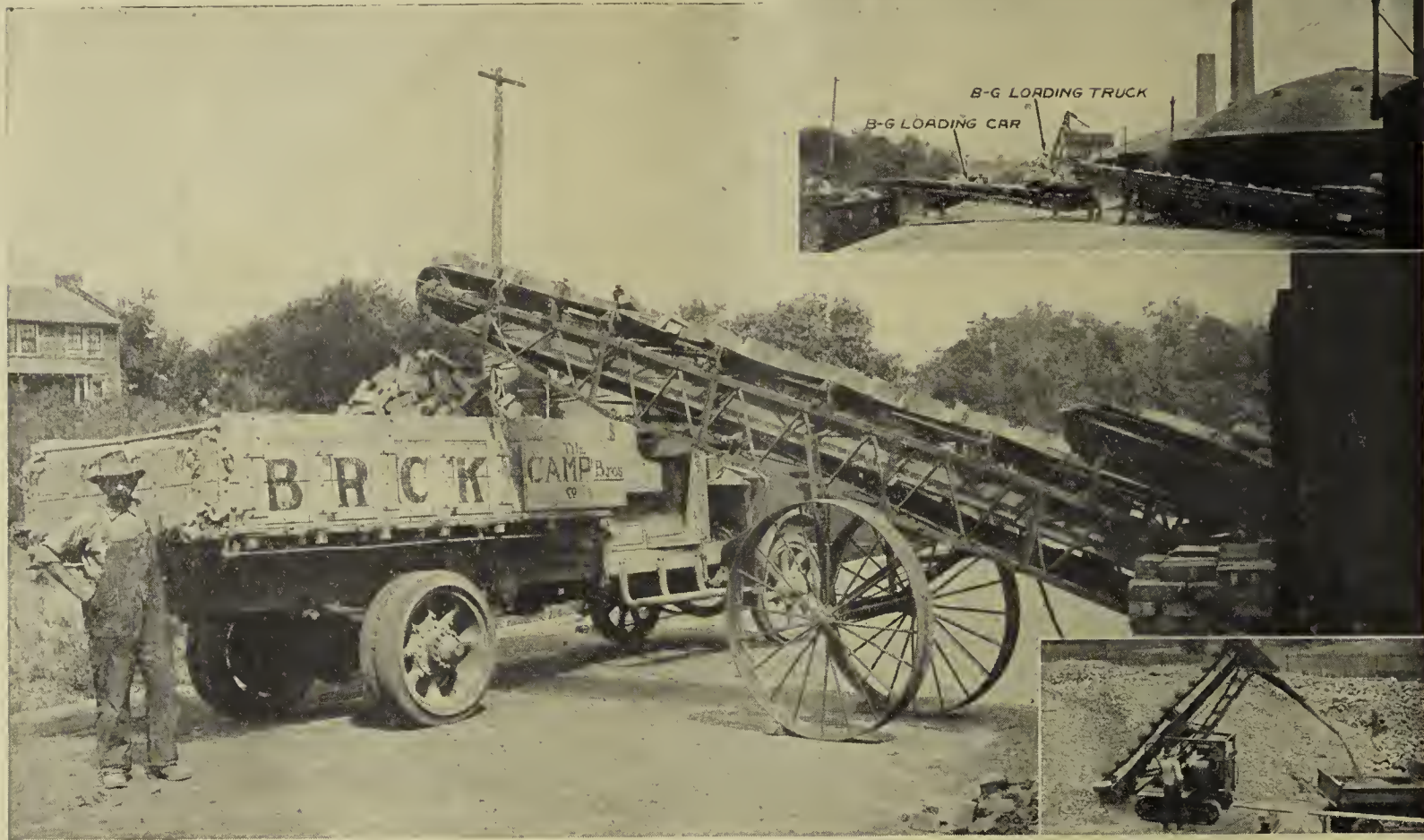


to be taken out to make room for the tunnel kiln.

Equipment is not the only thing which has been improved. The buildings themselves are being remodeled to conform with modern ideas.

occupied by the terra cotta department, are factory maple floors. The factory building is well lighted by natural light. Skylights in the roof make artificial lighting unnecessary during the daytime on the third floor. The electric

Barber-Greene Conveyors loading trucks and cars in Mogadore plant of Camp Bros. Company.



Barber-Greene Bucket Loader in a brick-yard in Illinois

Loading 100,000 brick per day with 6 men

Wheelers are entirely eliminated in loading brick into trucks and railroad cars at the plant of the Camp Bros. Co., of Mogadore, Ohio.

Two years ago they purchased three Barber-Greene Conveyors to replace wheelbarrows and wheelers.

They estimate that with the Barber-Greene equipment a gang of 4 men loads 2,000 bricks into a truck in nine minutes, and 20,000 into a car in an hour and a half.

Six men load an average of 100,000 bricks a day. The most they ever loaded is 127,000 a day and they soon expect to average 110,000.

The men simply toss the bricks onto the moving belts of the Barber-Greenes which then carry them over the sides of flat-bottom, gondola-type cars and spill them.

In every case where Barber-Greenes have replaced common labor for loading brick, Camp Bros. Co. have found that the Conveyor method lessens breakage. They manufacture hard-burned shale common brick.

Since their first purchase of three Barber-Greene Conveyors in April, 1921, they have

purchased five more; one in Sept., 1921; three in April, 1922; and one in Nov., 1922.

They also use the Barber-Greenes for storing bricks in any convenient part of the yard and for reclaiming from these storage piles.

Other brick plants also use Barber-Greenes for handling wet clay, shale and power plant coal.

In a certain sand-lime plant one 24-foot Barber-Greene earns \$1,310.45 a year net by replacing five men in sand handling.

The rising cost and increasing scarcity of common labor may seriously threaten brick-yard profits and production as summer comes on.

By using Barber-Greene equipment to reduce wheelbarrow and shovel gangs, costs can be kept down. By using the men thus saved for other purposes, production and profits can be kept up.

Send for our catalog L and additional information about the use of Barber-Greenes in brick-yards.

BARBER-GREENE COMPANY

550 W. Park Avenue

AURORA, ILLINOIS

Representatives in 33 cities

BARBER

Portable Belt Conveyors



GREENE

Self Feeding Bucket Loaders



Figure 17. Clark Tructractor Hauling Broken Ware. This Little Truck Is Used for All Sorts of Odd Jobs Around the Plant.

lighting system was recently overhauled and wires enclosed in metal conduits, thus insuring maximum safety from fire.

Comfort for the employes has not been overlooked and such things as sanitary drinking fountains, which are conveniently located thruout the entire factory and yard, help to make the work more pleasant. Sanitation features are of the highest order, including



Figure 19. Lewis-Shepard Jack-Lift Truck Carrying Pieces of Terra Cotta from Molding Room to Dryer.

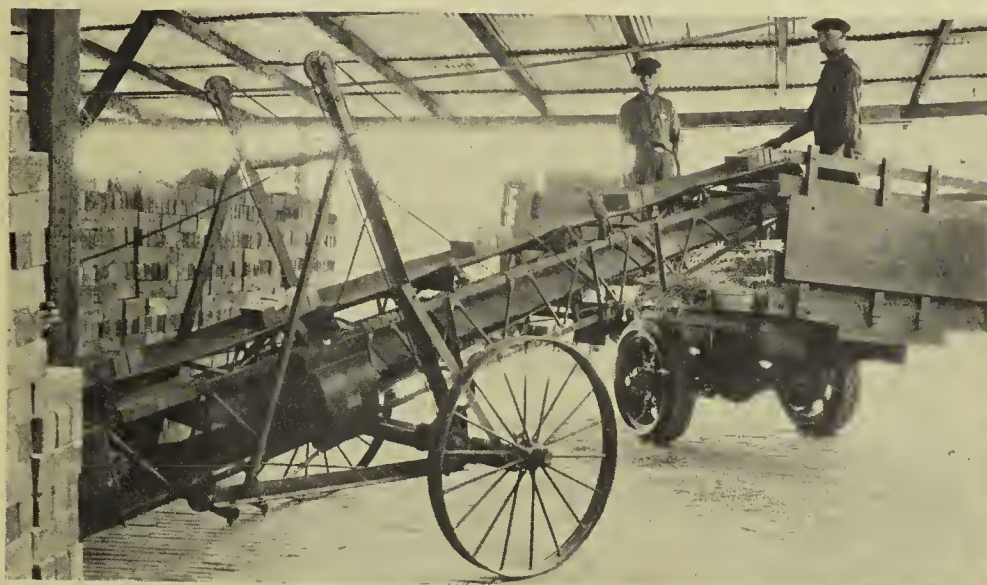


Figure 18. One of the Two Barber-Greene Electric Portable Brick Loading Conveyors in Use in the Stock Shed. They Are Used Whenever the Trucks Cannot Get Along Side of the Stock Piles.

shower baths and locker rooms. The old machine shop, which was 25 x 45 feet in dimensions and located in the main factory building, is being fitted up as a locker room with steel lockers for the use of the men working in the factory. Those men working in the kilns and about the yard are provided with lockers in the shower room located near the stock piles.

Yards Are All Paved

The yard around the kilns, the stock piles, the loading platform and the main roadways, are paved with brick or concrete. This enables the

efficient use of electric lift trucks for unloading the kilns (Figure 16). Industrial trucks are used, especially on the long hauls. Even tho no coal is used on this plant, tructractors serve a very useful purpose and are constantly engaged in some kind of work (Figure 17). This equipment, incidentally, proved invaluable during the construction period and brick, concrete, tile and dirt were removed with it while the tearing out and tearing down were going on. Then the tructractors were used to deliver brick, hollow tile, cement and so forth for new work, much of which has been inside of buildings and where space was limited. Portable, electrically operated brick loading conveyors are used in loading auto trucks when a truck cannot get alongside of stock pile (Figure 18). Carload shipments are made from the Southern Pacific depressed spur track, which has a capacity of 17 cars.

A model storeroom, in charge of a storekeeper, is maintained at the plant. A large and well equipped garage, where all work is done on automobiles and other self-propelled equipment, except auto trucks, has been provided. All motor truck delivery is contracted for.

Electrification Saves Six Men

The electrification of the Los Angeles factory, which was started in 1921 and completed last year, displaced six men required for the steam power plant. One man now attends to all motors, resulting in a net saving of five men besides reducing the cost of power and maintenance. The total electrical horsepower on the plant, including the operation of the air compressors, amounts to 1,351 horsepower.

A very fine building houses the machine and blacksmith shops. It is modern, with plenty of light to make working conditions pleasant. Equipment consists of a 50-pound power hammer,

“—There was Required Considerable Study and Foresight”

Los Angeles Pressed Brick Co. Chose the

BROOKVILLE LOCOMOTIVE

with

FORD TON TRUCK POWER UNIT

L. A. P. B. Co. also chose the heavier Brookville Locomotive with Fordson power unit for handling clay at their Alberhill plant.

Mr. Howard Frost, president of the above company, states—

“We are using your Ford locomotive exclusively at our Santa Monica plant in the delivery of clay from shale planer to conveyor belt. We haul a 4-yard car on a 3% grade around a 90' radius curve. This equipment has been doing splendid work.”

Put a Brookville Locomotive in your plant and note the increased volume of haulage at lower costs.

BROOKVILLE TRUCK AND TRACTOR COMPANY

Brookville,

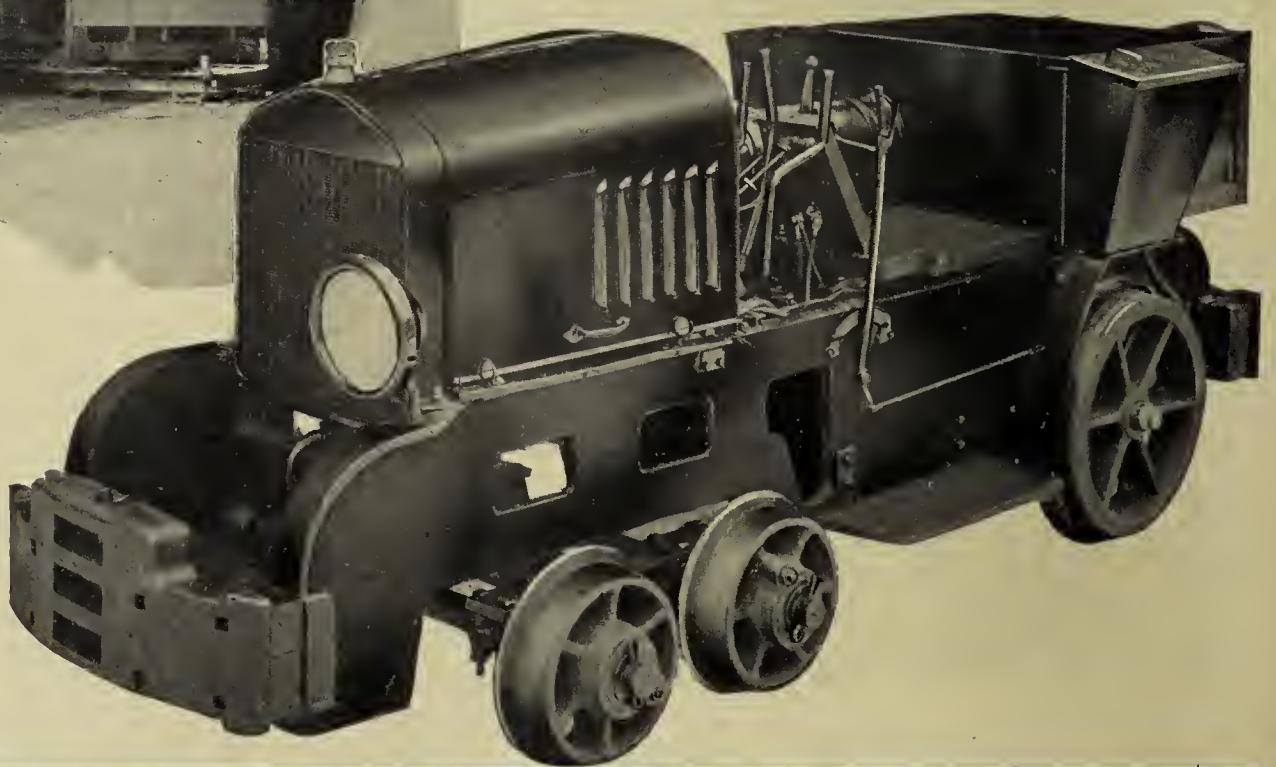
::

Penn., U. S. A.



Foreign Distributors
A. J. ALSDORF CORP.,
404 S. Wells St.
CHICAGO

California Distributors
CALIFORNIA EQUIP. &
SUPPLY CO.
205 N. Los Angeles St.
LOS ANGELES, CALIF.



20 inch lathe, 20 inch shaper, 25 inch sliding head vertical drill press and a power hack saw. Later the company will install a No. 3 surface grinder and a surface milling machine.

Terra Cotta Department

The terra cotta department of the Los Angeles Pressed Brick Co. is located in the No. 1 or Los Angeles plant. The pressing, drying and spraying departments occupy the second and third floors of this plant, which covers an area of approximately 60,000 square feet.

Terra Cotta Clay Measured on Scales

Grog for terra cotta manufacture is prepared by a gyratory type crusher, which reduces the material to about nut size. It is then taken by the regular equipment as outlined in the description of the method of handling clay and grog given in the beginning of the article. At the mixing plant the grog is ground with the clay, elevated and screened, and deposited into a 50 ton capacity bin which is directly over a ten foot pug-mill. The pugged clay is delivered in quantities of one ton upon pallets weighed on platform scales. The clay is then carried by an overhead conveyor system to the aging room. From there, both pallet and clay are taken by a power hoist to tracks locat-

Figure 20. A 45 Foot Eagle Shale Planer Is the Clay Winning Apparatus in Use at the Santa Monica Plant of the Los Angeles Pressed Brick Co. A Brookville Locomotive Hauls the Clay from the Planer in an International Clay Car, to the Plant.

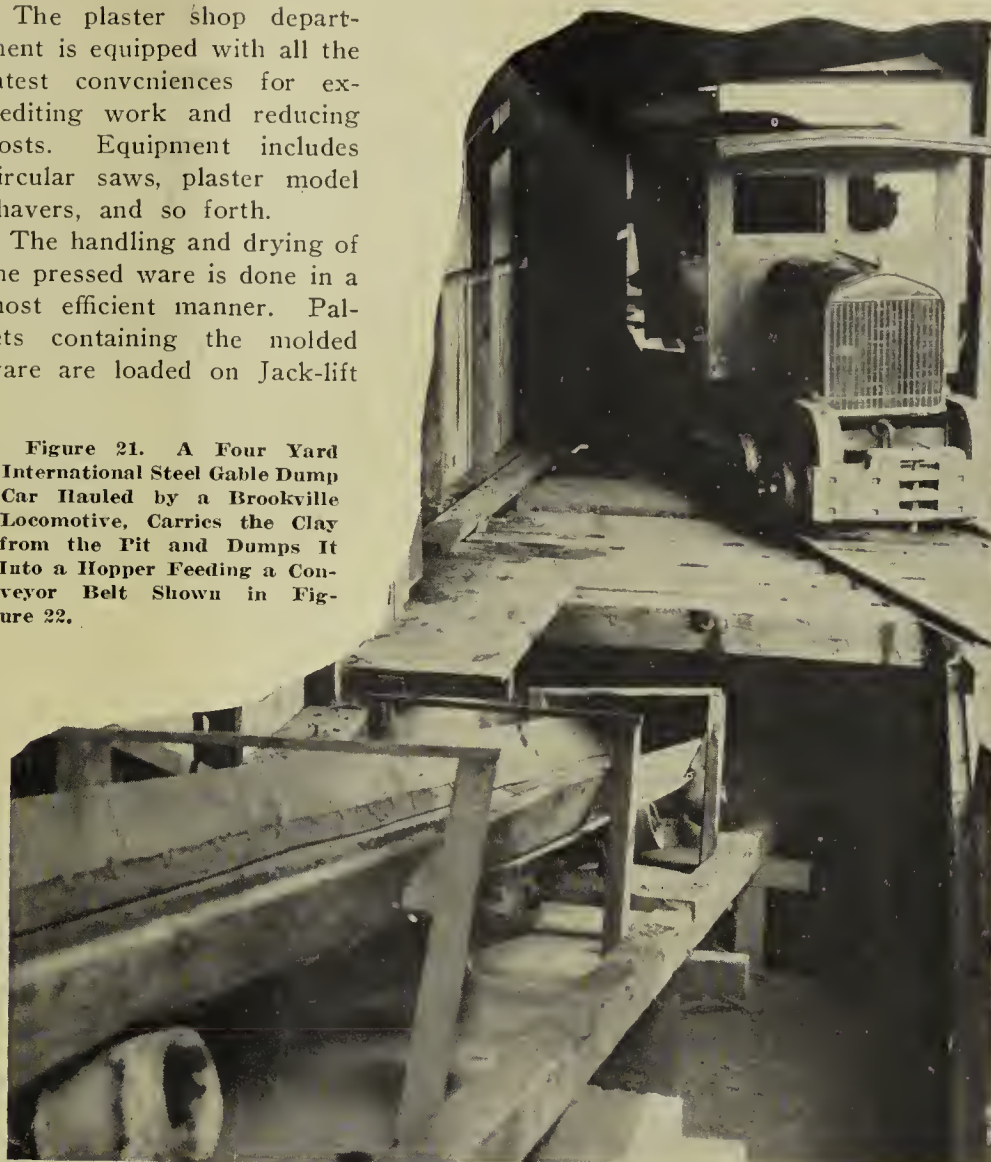


ed on the floor above and then delivered to the terra cotta pressers.

The plaster shop department is equipped with all the latest conveniences for expediting work and reducing costs. Equipment includes circular saws, plaster model shavers, and so forth.

The handling and drying of the pressed ware is done in a most efficient manner. Pallets containing the molded ware are loaded on Jack-lift

Figure 21. A Four Yard International Steel Gable Dump Car Hauled by a Brookville Locomotive, Carries the Clay from the Pit and Dumps It Into a Hopper Feeding a Conveyor Belt Shown in Figure 22.



trucks, which convey the terra cotta to the four drying chambers (Figure 19). These chambers measure 12 x 36 feet,

and safe drying the dryers are operated in accordance with a system of humidity control devised by the company's engineering department.

For spraying the ware in simplest and quickest time, a large circular traveling wheel is used. Upon this wheel are mounted smaller rotary wheels, which arrangement enables the spraying of any surface of the terra cotta.

When the kilns are drawn the ware is placed upon a dolly platform, which is pushed to the kiln door and then hoisted by high speed hoisting gear to an overhead track conveyor and carried to the fitting shed.

Santa Monica Plant

This plant is practically standardized for the manufacture of hollow building tile, but occasionally other lines are turned out, such as runner blocks, common brick, flue linings, and so forth. An idea of the size of the plant may be obtained by figuring the total electrical horsepower required, which is 813, including that required by the shale planer and air compressor.

Equipment recently added has brought this plant to a high stage of perfection and it now ranks as one of

each one having a capacity for 15 tons of dry ware. To facilitate both speedy

“—There Was Required Considerable Study and Foresight”



“LEVIATHAN

Gives Us

BETTER SERVICE
than any other belting used,”

Writes Mr. B. F. Cake, General Superintendent of the Los Angeles Pressed Brick Co.

His letter reads:

“During the past twenty years we have used practically all of the better brands of rubber, woven, and stitched duck belting known to us in conveying and elevating rough and ground clays. This experience has resulted in our standardizing on Leviathan stitched duck belting for dry pan elevators as well as for conveyors subjected to heavy, hard usage.

“From our observation and records we have no hesitancy in stating that, based on price, Leviathan has given us better service at less cost per ton of material handled than any other belting used.

“We are also using Anaconda belting on heavy transmission drives, with entirely satisfactory results.”

MAIN BELTING COMPANY

Est. 1881

PHILADELPHIA

PITTSBURGH

CHICAGO

SAN FRANCISCO

*Main Belting Co. of
Canada, Ltd.,
Montreal*



Leviathan AND Anaconda Belts

TENSATED TO REMOVE STRETCH

the best low cost plants on the Pacific Coast.

There has recently been installed in this factory a shale planer capable of excavating on a 45 foot bank (Figure 20). The clay is transported in a four-yard steel automatic gable dump car hauled by a gasoline locomotive (Figure 21) and dumped into steel lined hoppers beneath which a reciprocating feeder uniformly feeds the clay onto an 18 inch six ply belt. This belt is approximately 600 feet in length and built in two sections (Figure 22). The clay is carried directly to a

auger machines, which are used for the manufacture of hollow tile or brick. One of these machines has just recently been installed and the present monthly output of 3,000 tons will be increased at once. A rotary cutter is used in connection with this new machine. Flue lining and chimney pipe are run on a sewer pipe press.

Ware Dried with Waste Heat

Waste heat from the kilns is utilized for drying and the dryer, which has been installed by a firm specializing in that type of equipment, is a highly efficient

age performance was obtained. This remarkable showing has been made possible by the fullest cooperation on the part of the factory with the ceramic engineer referred to. These kilns are all equipped with pyrometers.

Alberhill Factory

From a frontier village, consisting of

Figure 22. (Small Photograph) View of Leviathan Clay Conveyor Belt Which Takes the Clay from the Pit to the Storage Shed. Large Photo Shows Part of the Housing of the 600 Foot Conveyor Belt Used to Handle Clay at the Santa Monica Plant of the Los Angeles Pressed Brick Co. One Seldom Sees an Outside Conveyor Belt so Well Protected.



storage shed, capable of holding about 3,500 tons. Underground belt conveyors take the clay from the storage shed to the dry pans and disintegrator.

Four Men Do All Clay Handling

The entire clay handling equipment at this plant, including mining and transportation, is operated with only four men working three days a week. This has been made possible by the substitution of the above mentioned equipment for a steam shovel, horse driven cars, and drum and hoist operated on an inclined track, all of which required six men working six days a week to operate.

The grinding machinery includes two nine foot dry pans, one 18 inch disintegrator and two wet pans. These are driven by electric motors (Figure 23).

The machine room contains two

one. It had originally 27 tunnels and six more were added, making 33 in all. It has a capacity of 528 dryer cars. A view of one of the fans used in the operation of this dryer is shown in Figure 24.

The kilns at the Santa Monica plant include 11 of the round down-draft type, ranging from 30 to 36 feet in diameter, and one rectangular kiln. These are all fired with oil.

At this plant the company recently placed one of the ceramic engineers, who was formerly engaged in research and kiln investigation conducted by the United States Bureau of Mines and Standards in cooperation with the four heavy clay products associations. In two months' time, this engineer obtained some remarkable results in burning efficiency. A saving of 11 per cent. in fuel oil consumption and 29 per cent. in burning time over the former aver-

a store, schoolhouse, boarding house, and seven or eight weather-beaten shacks to a clean and neat village of hollow tile bungalows, the backbone of which is a modern clay products factory of remarkable efficiency which has been pronounced by men with years of experience in the clay industry to be very nearly ideal from a standpoint of natural location and arrangement, is the transformation accomplished by the Los Angeles Pressed Brick Co. at Alberhill, Riverside County, Calif. It was remarkable courage and vision which prompted that company to locate one of its plants at Alberhill, 70 miles from the city of Los Angeles. This plant annually converts approximately 50,000 tons of raw material into building materials and refractory products. It is situated in what is known as Temescal Canyon, which is formed by a range of parallel



Los Angeles Pressed Brick Co.

as well as

**80% of the LARGEST CLAY
PRODUCTS MANUFACTURERS**

use

RODGERS

WASTE HEAT DRYERS

and

**RODGERS "LIFETIME" DRYER
EQUIPMENT**

**TWENTY YEARS' EXPERIENCE IN DESIGNING
WASTE HEAT DRYERS, DRYER EQUIPMENT
COMPLETE CLAY PRODUCTS PLANTS**

No service too large—None too small

At YOUR Service

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists—Clay Products Engineers
Largest Manufacturers of Brick Drying Equipment in the United States

OTTAWA,

ILLINOIS





Figure 23. View of the Five 50 H. P. Slip Ring General Electric Motors in Use Driving the Two Dry Pans, Two Wet Pans and a Disintegrator at the Santa Monica Plant.

hills that extend for 15 miles. The plant is advantageously situated to use the clay in the hills with the least amount of expense for transportation. Gravity has been put to work wherever possible at this plant.

Alberhill Almost 100% Efficient

So what was once an uninviting place in the midst of barren hills spotted with sage brush and occasional cactus, the habitat of lizards and horned toads, has come to be a clay products manufacturing unit of nearly 100 per cent. efficiency, serving mankind by converting the surrounding clay hills into products which are useful to industry and building construction.

The overburden is stripped by a five-eighths yard gasoline shovel and removed by auto trucks (Figure 25). By this method the cost of stripping has been reduced more than 30 per cent. over the former hand methods. The clay that is used for manufacture is transported a distance of one-third mile in 1½ yards capacity steel rocker dump cars drawn by a four-ton gasoline locomotive (Figure 27).

The clay at the Alberhill plant is manufactured into hollow tile, face and fire brick and hand-made refractories. The plant is laid out in three distinct units. One of these produces fire brick and wire cut face brick of smooth and rough textures; at another, hand made refractories are manufactured. The third unit turns out hollow tile. The hollow tile unit has been very favorably commented upon as it is light and airy with ample space and well arranged thruout.

Clay Handling All Mechanical

The clay received from the quarry is dumped into four chutes having a combined capacity of 150 tons. 30 inch underground belt conveyors, 40

feet long, transport the clay from these hoppers to a single roll crusher. The crushed clay is then elevated by a steel bucket and chain elevator, 48 feet high, and dumped upon an 18 foot, 20 inch belt conveyor which operates at right angles to a 70 foot, 18 inch distributing conveyor with self-propelled tripper (Figure 28). The clay is deposited into six steel-lined hoppers, each with 20 tons capacity. Below these hoppers operates a two-yard electrically powered compartment mixing car of original design driven by

All of the belts are rubber. The plant is electrified thruout, having a total of 885 horsepower.

Three Hackers Handle Hollow Tile

At the hollow tile unit the clay is dumped into bins which feed two nine foot dry pans located below them. An auger machine turns out the product at a maximum rate of 31 tons of hollow ware per hour (Figure 29). Three hackers handle all sizes of hollow tile up to eight inches in thickness. Sizes



Figure 24. View of L. E. Rodgers Fan in Use on the Waste Heat Dryer at the Santa Monica Plant of the Los Angeles Pressed Brick Co.

cable and grip. The mixing car deposits the crushed and mixed clay into two steel hoppers, each with three tons capacity. Below each of these steel hoppers is a 12 inch diameter, 18 foot screw conveyor which uniformly feeds the clay into two nine foot dry pans.

8x12x12 inches and larger require four hackers. From the machines the ware is conveyed to the waste heat dryers by means of a gasoline motor.

The waste heat dryer has 26 tunnels capable of holding 18 cars each. The intake dryer fan is 12 feet in diameter while the exhaust fan is ten feet. They



Figure 25. This Is the Equipment Used to Strip the Overburden at the Alberhill Plant. A Thew Gasoline Shovel Digs the Waste Material Which Is Hauled Away in Motor Trucks.



Figure 26. A General View of the Los Angeles Pressed Brick Co. Plant No. 4, Which Is Located at Alberhill, Cal.



Figure 27. Good View of the Hadfield-Penfield Gasoline Locomotive and Clay Cars Used to Haul Clay from the Pit to the Plant.

SUMMARY OF ALBERT
 ALBERTSON
 1923

are driven by 25 and 40 horsepower motors and silent chains. An electric transfer car takes the ware from the dryer tunnels to tracks leading to each of the 12 round down-draft kilns. These kilns are fired with oil. As in the other plants, pyrometers are used to control the temperatures in the kilns.

To Install Overhead Carrier

The company expects to install an overhead carrying system soon to take the pugged clay from the two wet pans to the block makers. This will result in eliminating two men required with the present method of handling clay on four wheel, hand push cars.

Four repress machines are in use at the Alberhill plant. They are used especially to repress fire brick.

To furnish grog for the manufacture of fire brick at this plant raw material is calcined in the remarkably short period of 18 hours. Large lumps ranging from four inches in diameter up to about 75 pounds in weight are calcined in a special kiln.

Sales Policies Carefully Worked Out

An indication of the progressiveness of this company is the careful attention which is given to its sales policies, and this care is exercised notwith-

standing the fact it is located in a section where clay products are practically at a premium. The future is always kept well in mind. A well-organized department of sales engineers is maintained to keep in close touch with architects and contractors. This policy is following the trend of modern times. Efficient office methods are employed in each branch of this institu-

tion. Each day, week or month, as the occasion requires, the various departments are in possession of facts,

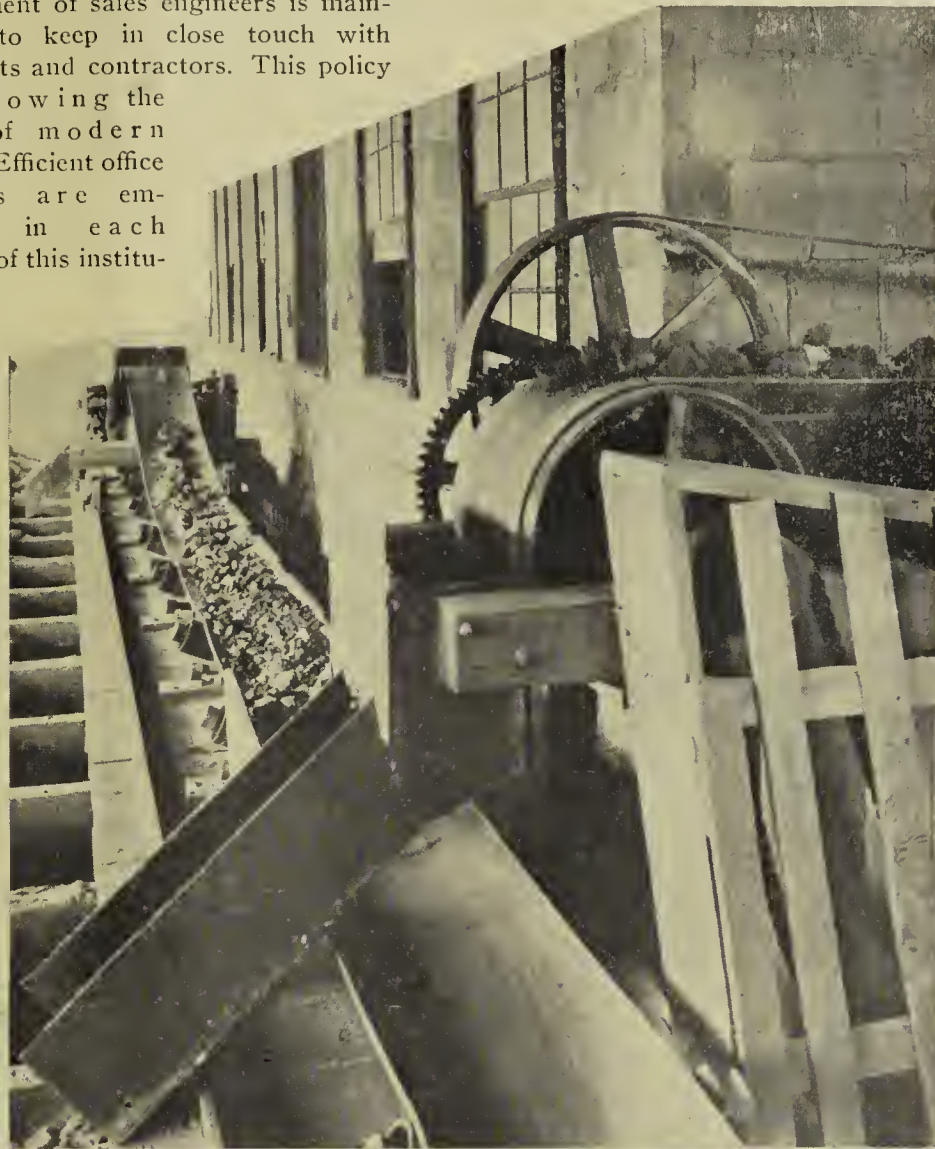
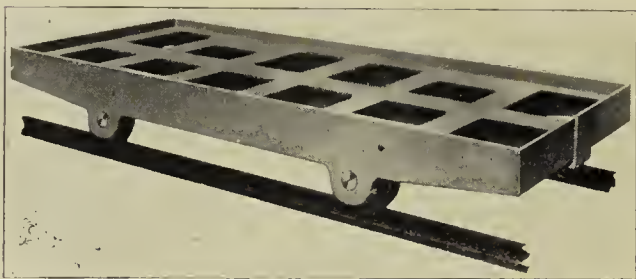


Figure 28. (Top Right) By Means of the Tripper Shown, These Leviathan Belts Deposit the Clay into Six Steel-Lined Hoppers Each of 20 Tons Capacity. From These Hoppers the Clay is Dropped into the Gathering and Mixing Car Shown Lower Left. This Car Dumps the Material into Two Steel Hoppers, One of Which is Shown Directly in Front of the Car. These Hoppers Feed the Clay into a Link-Belt Screw Conveyor, Shown at Lower Right, Which Delivers the Clay to the Dry Pans.

91-KILN CARS

Transfer Cars and Trackage



2 Types Kiln Cars

Sold
Los Angeles Pressed Brick Co.

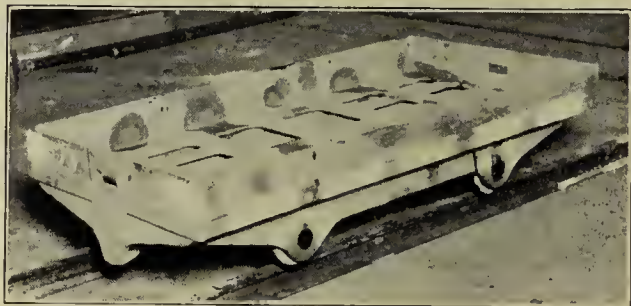
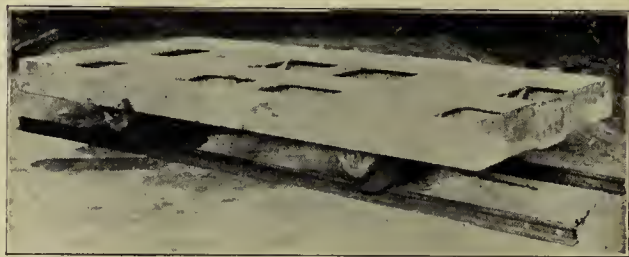
for their

HARROP Tunnel Kiln

also

Gable Bottom Dump Cars

Every Railroad Tunnel Kiln save one, built in this country in the last two years by Harrop, Dressler and Russel Engineering Co., has been equipped by us.



2 More Kiln Cars

THINK OF IT!

and of all the Railroad Kilns built in two years—only 1 CAR JOB lost.

THIS IS A RECORD TO BE PROUD OF

International Clay Machinery Co.

DAYTON, OHIO, U. S. A.

New York

Toronto

Pittsburgh

KILN No.	Period Progress		DATE	PRESSED BRICK										STIFF MUD BRICK																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Figure 30. This Kiln Progress Chart Is a Graphic Picture of Just What Is Being Burned and How Near to Completion the Burn Has Progressed. This Is Very Valuable to the Sales Department as It Enables Them to Tell at All Times Just What Material They Will Have at Their Disposal.

figures and charts. No guess work is tolerated. A novel system has been designed for keeping track of the material in the kilns as shown in the accompanying illustration. This is termed a kiln progress chart (Figure 30). Each plant operates a similar chart, and in this way guess work and mistakes are entirely eliminated. The figures making up this chart are secured daily from the superintendent

of each plant and they are all circulated among the personnel of the production department.

Kiln Progress Chart

The purpose of the kiln progress chart is to show the amount and kind of material contained in each of the various kilns as well as the period thru which the ware is passing.

In the first column at the extreme

left hand side of the chart are shown the kiln numbers from 1 to 18 used for burning face brick and roofing tile. Also kiln A to F inclusive used exclusively for burning enamel brick.

The second column shows the period thru which the material is passing; whether it be setting, burning, cooling or drawing, its progress being marked by colored map tacks to represent the above named stages.

These tacks are moved one space each day as the ware progresses and at the completion of each period tacks representing the next are substituted and the performance repeated. Thus the ware is checked thru the various stages of the kiln burn.

The third column is used to show the firing date of the kilns.

Information Valuable to Salesmen

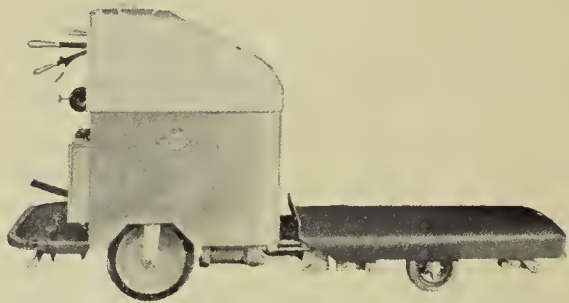
A definite setting, burning, cooling and drawing schedule is worked out for each size of kiln and class of material set, and it is therefore possible, by referring to column three, to plan the

Figure 29. The Hollow Tile Unit of the Alberhill Plant Showing Hadfield-Penfield No. 290 Auger Machine and a Chambers Cutter. Three Hackers Handle All Sizes of Tile Up to Eight Inches.



Figure 31. This Monroe Calculating Machine Speeds Up the Clerical Work in the Office Tremendously. One of the Books in the Los Angeles System Is Shown Directly Behind It.

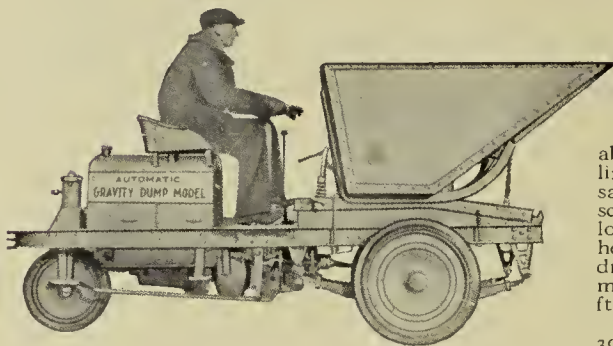
Ready to Save Money for You!



Clark Truclift
A Gasoline Powered
Lift Truck

Here is a gasoline propelled lift truck capable of lifting and carrying loads of 4000 lbs. It will do the work of ten hand truckers.

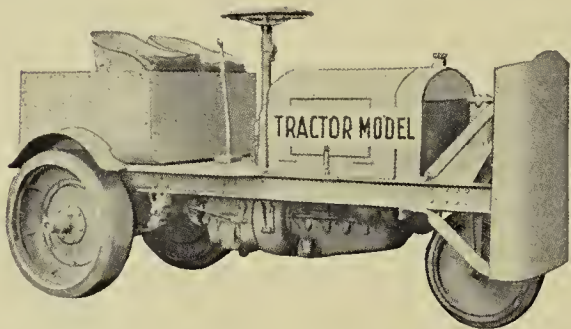
Ideal for toting skids loaded with brick or tile to storage or shipping platform.



**Automatic
Dump Clark
Trutractor**

This type body is suitable for the quick handling of coal, ashes, coke, sand, concrete, waste, scrap, sweepings. The load is dumped and the hopper recovered by the driver, who does not dismount. Capacity 24 cu. ft. or 2500 lbs.

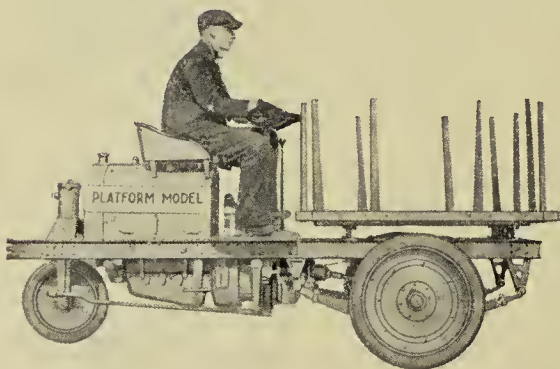
Also spl. model with 30 cu. ft. capacity.



**Towing
Trutractor**

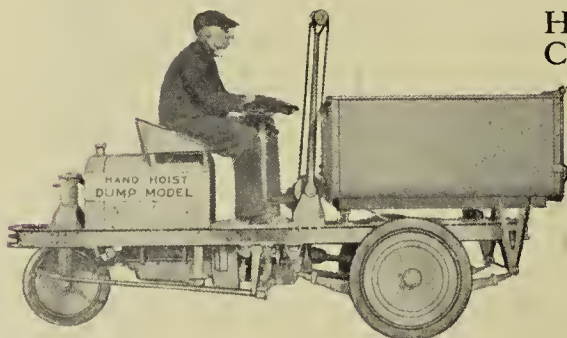
This model is used for towing one to ten trailers; giant rubber tires used; standard equipment includes front bumper plate and adjustable drawhead.

Used by many brick and clay plants in storage yards and on shipping platforms.



**Platform
Trutractor**

The stakes are removable in this body, permitting its use for the transportation of lumber, sheet metals, sacks, tile, etc. With stakes this machine is used for hauling crates, large tile, boxes and similar objects. Capacity 2500 lbs.



**Hand Hoist Dump
Clark Trutractor**

This machine has been found adaptable to the inter-departmental haulage needs of many plants. The simple gear hoist enables the driver to dump the load quickly in any place indicated.

Clay plants save money on cartage to dumps with this model.

Capacity 27 cu. ft. or 2500 lbs.

The cost of manual labor in plant haulage by American business exceeds its freight bill. And this labor is no longer necessary—hand trucking has no place in modern industry. With another period of unskilled labor shortage upon us, *now* is a good time to eliminate this costly, wasteful method.

CLARK Reg. U. S. Pat. Office **TRUCTRACTORS** Gasoline Industrial Vehicles

soon pay for themselves in labor saved and pay big dividends thereafter. They increase production by speeding up many operations. They give you a welcome immunity from common labor shortages and other problems.

A Model for Every Need

The present line of Clark gasoline industrial vehicles is the result of long experience in supplying hauling equipment. Whatever your hauling requirements and conditions may be, there is a Clark Trutractor which will speed up work and save you money. Our principal types are shown on this page.

A Few Fleet Owners

The character of Clark Trutractors is indicated by their users. Many of the largest pottery, brick and clay plants operate fleets of these machines, such as:

Cleveland Brick & Clay Company
Federal Refractories Company
Kaul Clay Mfg. Company
Los Angeles Pressed Brick Company
Mack Manufacturing Company
Metropolitan Paving Brick Company
National Fireproofing Company
Onondaga Pottery Company
Robinson & Sons Sewer Pipe Company

CLARK TRUCTRATOR COMPANY
1124 Days Avenue :: Buchanan, Michigan

Investigate Now!

Put your hauling on a modern, money-saving basis. Write for information today. Use clip and sign the coupon below.

CLARK TRUCTRATOR COMPANY, 1124 Days Avenue, Buchanan, Michigan, U. S. A.
Gentlemen: Please send full information on the Trutractor models checked:
☐ Clark Truclift ☐ Automatic Dump ☐ Towing Trutractor
☐ Platform Trutractor ☐ Hand Hoist End Dump

Name _____ Title _____ Address _____ City _____ State _____

work about 15 days ahead. This enables the company properly to distribute its working force so as to get

(Figure 31). A very efficient cost system installed by a noted firm of accountants is in use.



Figure 32. "Prof." Burchfiel, Refractories Chemist, at Work in the Laboratory of the Los Angeles Pressed Brick Co. This Laboratory Is Located at the Alberhill Plant and Is Part of the System Employed to Produce the Best Ware.

the maximum kiln turnover. Reliable information can also be furnished customers as to date deliveries of material can be made.

The balance of the board is divided into one-half inch spaces with each space representing a different material.

After the setting has been completed the exact quantities of material set are written in under proper headings, thereby giving a complete record of each kiln setting.

Shipping Clerk Speeded Up

By use of a standard registering machine, the shipping clerk in each plant is enabled to make about 50 per cent. more delivery records than under the old method, which required the changing of carbons for each entry. Three copies of shipping tickets are used,—the original is taken to the job by the truck driver, receipted and returned to the general office, where it is priced, extended and posted to the customers' ledger. It will be seen that this one form shows delivery record, customer's receipt, and is the original entry. Therefore, in cases where it is necessary to substantiate a mechanic's lien, these delivery slips are all the evidence needed.

The timekeeper at each plant is greatly assisted in properly distributing labor costs by the use of a listing and calculating machine. The cost accountants at the general office also use a calculator to assemble their figures

The accounting office is so planned that the charge tickets pass over the pricing, extending, billing and posting desks in one continuous journey to the final filing place. The auditor in charge is situated in the center of the room, that he may at all times be in close touch with all of his assistants.

No clay products display room is more attractive, interesting and complete than that of this company, located at its general offices. Artistic taste is evident in every detail of the planning and execution of this exhibit of unusual beauty. As this article is concerned mainly with the outstanding features of manufacturing, a description and pictures of display room will be shown at a later date.

Not content with the installation of



Figure 33. The Los Angeles Pressed Brick Co. Is Constantly Searching Its Large Holdings for New Deposits of Clay and Shale. Here Is Shown a "Core Drill" With Which the Prospecting Is Done. At Present It Is Installed on the Company's Alberhill Properties.

view of the laboratory is shown in Figure 32. It has been very valuable in testing specimens of clay which have been discovered during the course of prospecting work on the company's properties.

Prospecting Work

The company does considerable prospecting and has a complete boring and clay drilling equipment, which is shown in Figure 33. This has proven invaluable in discovering quickly and economically the extent of the clay properties. A number of holes approximately 150 feet in depth have been put down and the cores show the varieties of clay and their depth. As an example, in one of the holes, besides a 46 foot overburden, which is probably maximum, cores of nine different varieties of usable clay were removed down to a total depth of 141 feet. The cost of operating this equipment is not very great, averaging approximately \$1 per foot. The drillings have been very satisfactory as in a few weeks' time the company has established to its own satisfaction the fact that they have a vast amount of clay, whereas before the drilling was begun it was thought the supply of clay was limited.

most modern equipment to improve the quality of its product, the Los Angeles Pressed Brick Co. also maintains a laboratory at its Alberhill plant where an experienced chemist is constantly working to produce a better product. A

This particular activity typifies the whole policy of the Los Angeles Pressed Brick Co., which is to look ahead, anticipate needs and conditions and be prepared to meet them when the time comes.

These Concerns Furnished Equipment for the Los Angeles Pressed Brick
Co. Plants Which Was Essential to Produce the Economies
Described in this Article:

Adding and Listing Machine.....	Dalton Adding Machine Co., Cincinnati, Ohio.
Auger Machines (6).....	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Belting, Canvas (600 ft., Clay Conveyors).....	Main Belting Co., Philadelphia, Pa.
Belting Canvas (5, Transmission and Elevator Belts).....	Main Belting Co., Philadelphia, Pa.
Belting, Rubber (Several 100 ft.) "Blue Streak".....	Goodyear Tire & Rubber Co.
Brick Machine (1) Union or Combined.....	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Burners, Gas & Oil (560).....	Schurs Oil Burner Co., Los Angeles, Calif.
Calculating Machines	Monroe Calculating Machine Co., New York, N. Y.
Car, Dryer (200)	Chase Foundry & Mfg. Co., Columbus, Ohio.
Cars, Haulage (2) 4 yd. Automatic Gable Dump.....	International Clay Mchy. Co., Dayton, Ohio.
Cars, Tunnel Kiln (91)	International Clay Mchy. Co., Dayton, Ohio.
Conveyors, Belt (1)	Stephens-Adamson Mfg. Co., Aurora, Ill.
Conveyor, Belt (1) Chain Bucket Elevator.....	Stephens-Adamson Mfg. Co., Aurora, Ill.
Conveyors, Overhead Monorail, (2).....	Louden Equipment Co., Fairfield, Ia.
Conveyors, Portable (2)	Barber-Greene Co., Aurora, Ill.
Crushers, Single Roll (2).....	Stevenson Co., Wellsville, Ohio.
Cutter (2) Rotary	Chambers Bros. Co., Philadelphia, Pa.
Cutter (1)	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Disintegrators (3)	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Dry Pans (6)	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Dry Pans (3)	Bonnot Co., Canton, Ohio.
Dry Press Machine (1).....	Chisholm, Boyd & White Co., Chicago.
Dry Press Machine (1).....	Fernholtz Brick Mchy. Co., St. Louis, Mo.
Dryers (1) 27-track Dryers	L. E. Rodgers Engineering Co., Ottawa, Ill.
Elevators, Bucket (1)	Link-Belt Co., Chicago.
Fans (2)	L. E. Rodgers Engineering Co., Ottawa, Ill.
Feeders, Reciprocating (7)	Conveyor Equipment Co., Los Angeles, Calif.
Gathering Cars (1) (Besides one of original design).....	Stephens-Adamson Mfg. Co., Aurora, Ill.
Kiln, Insulation	Feather Stone Insulation Co., Los Angeles, Calif.
Kiln, Tunnel (1) One of Two Now Building.....	Carl B. Harrop, Columbus, Ohio.
Kiln, Tunnel Equipment.....	International Clay Machy. Co., Dayton, Ohio.
Lift Truck, Jack, (2)	Lewis-Shepard Co., Boston, Mass.
Locomotive, Gasoline (1)	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Locomotive, Gasoline (2)	Brookville (Pa.) Truck & Tractor Co.
Meters, Oil	Buffalo (N. Y.) Meter Co.
Motors, Electric	General Electric Co., Schenectady, N. Y.
Motors, Electric	Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.
Monorail (1)	Pawling & Harnischfeger, Milwaukee, Wis.
Pug-Mills (5)	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Poidometers (5)	Schaffer Eng. & Eq. Co., Pittsburgh, Pa.
Pyrometers (Besides Harrop Kiln).....	Brown Instrument Co., Philadelphia, Pa.
Represses (3)	Bonnot Co., Canton, Ohio.
Repress (1)	Hadfield-Penfield Steel Co., Bucyrus, Ohio.
Screens (1) Also One Other Mechanical Screen.....	W. S. Tyler Co., Cleveland, Ohio.
Shale Planer (1)	Eagle Iron Works, Des Moines, Ia.
Shovel, (1)	Thew Shovel Co., Cleveland, Ohio.
Spraying Machines, terra cotta (1).....	
Transmission, Silent Chain Drives (8).....	Link-Belt Co., Chicago.
Trucks, Industrial (2)	Baker R. & L. Co., Cleveland, Ohio.
Tructractors (2)	Clark Tructractor Co., Buchanan, Mich.
Wet Pans (5)	Hadfield-Penfield Steel Co., Bucyrus, Ohio.

A Story Without Words



The CYCLOPEDIA is found in good company on the desk of Howard Frost, president of The Los Angeles Pressed Brick Company.

It is one of eight reference books.

CLAY PRODUCTS CYCLOPEDIA

The standard annual reference publication, which contains engineering and catalog information for the entire clay products industry.

*Additional information gladly
furnished upon request.*

407 South Dearborn St.

CHICAGO, ILL.

What You Should Know About Business

Condensed Report of Hoover's Committee on "Business Cycles and Unemployment"—Discuss Whys and Wherefores of Booms and Slumps—Suggestions for Equalizing Industry's Prosperity

OUT OF THE TIME and effort expended by high caliber men and women while serving on the President's Conference on Unemployment, there have come some very definite and constructive thoughts which may be regarded as the first step to eliminate booms and slumps in American industry and to level out the curve of prosperity.

It became obvious during the conference that the so-called "Business Cycles" were worthy of considerable study and attention and it was with this object in view that Secretary Hoover appointed a committee on "Business Cycles and Unemployment." This committee consisted of the following well known economic experts: Owen D. Young, chairman of the board, General Electric Co., chairman; Joseph H. Defrees, former president of United States Chamber of

That big companies have realized that business cycles must be studied and that statistics are of vital importance in facilitating such study is evidenced in the following words of Owen D. Young, chairman of the board of the General Electric Co. and of the President's Conference on Unemployment:

"If we did not think statistics were a real help in working out business policies the General Electric Co. would not appropriate thousands of dollars year after year, to maintain a special department to study statistics. We don't do it for fun; we know it pays."

Commerce; Mary Van Kleeck, Russell Sage Foundation; Matthew Woll, vice-president, American Federation of Labor; Clarence M. Woolley, president, American Radiator Co.; Edward Eyre Hunt, secretary of the President's Conference on Unemployment, secretary.

What Is the Business Cycle?

This committee diligently studied the question from all angles and made public results of their work in a booklet entitled, "Business Cycles and Unemployment," which may be had from the Government Printing Office for the price of five cents.

One of the first questions to be determined was, "What Is the Business Cycle?" In this connection the committee's report says, "Analysis of past cycles of business show certain common tendencies. If we begin the analysis when business is reviving, in general the characteristic features are increased volume of manufacturing, rising stock exchange prices followed by rising commodity prices, then by business expansion and increased demand for credit from both business men and speculators. As the result of the advance of commodity prices, money rates stiffen and credit gradually becomes strained, and these conditions may be accompanied by a curtailment of credit for speculative purposes. Then stock exchange prices fall; for a while longer general business continues to increase unevenly, transportation facilities are

overburdened and deliveries are delayed, the apparent shortage of goods is intensified by speculative buying and duplication of orders by merchants and other buyers until credit expansion nears its limit. Public confidence is then shaken, resulting in widespread cancellation of orders if the cycle is extreme. This is always followed by liquidation of inventories and sharp and irregular fall of prices. During the period of depression there is always more or less widespread unemployment."

Influence of Banks on Business

Particular stress was laid on the power and influence of the banks during times of inflation. "In dealing with these problems the banks are in a position of great importance," says the committee's report. "They should realize sooner than the typical manufacturer when credit strain is approaching and should be in a position to warn their customers of impending danger."

Banks should be possessed of the proper research information so that they might show their customers the proper conduct with regard to expansion of credit. The committee says in this regard, "The banks must realize that the responsibility for the over-expansion of loans rests upon them rather than upon their borrowers. Expansion of bank credit is a necessary condition of expansion of business operations. When the resources of a bank reach an end, a sudden contraction of loans is always a factor—generally the most compelling factor in bringing about a business collapse."

Credit Must Be Elastic

"To meet the varying needs of modern business credit must be elastic. There should be provisions for expansion as well as contraction. But an over-expansion of credit may so increase the purchasing power of business men that it will merely result in enabling them to bid against one another for limited supplies of goods and material so as to force prices above what customers are willing and able to pay."

In order to make important decisions intelligently it is necessary for the business man to possess a knowledge of conditions in the industry of which he is a part. Following are four phases of his business on which the manufacturer should be fully conversant, the committee says: "First, he must have available for his use current facts about general

The accuracy with which you forecast future developments in business determines whether or not your own business will prosper. "Future developments" are business cycles under another name and "business cycles" and "prosperity" are synonymous. Therefore you can not know too much about business cycles.

business conditions thruout the country and knowledge of the probable future trend of general business conditions.

"Second, he must have the basic facts about his industry. Because his particular business is influenced by conditions

affecting his entire industry, he must be in a position, with others in his industry, to study its peculiar industrial problems.

"Third, he must secure enough facts about his own business to give him not merely statistics but a proper basis for judgment as to his general policies.

"Fourth, he must inform himself with regard to the general credit situation and especially the attitude of his own bank toward extensions of loans."

Remedies for Unemployment

In its study of methods of controlling the business cycle, the committee arrived at the following remedies for widespread unemployment and extreme fluctuations in the business cycle:

"Control of credit expansion by banks generally.

"Possible control of inflation by the Federal reserve system.

"Control by individual business men of the expansion of their own industries.

"Control of public and private construction, including con-

Even in business America is a land of extremes. We are either feasting or starving. The business man who is most successful is he who knows when the feast is about to end and prepares for the famine. For this reason the modern, progressive business man learns all he can about his and the other fellow's business.

struction by public utilities, at or near the peak of the business cycle.

"Construction of public works in the time of depression.

"Unemployment reserve funds.

"Federal and state employment bureaus."

In the conclusion of its report, the committee makes ten recommendations for relief from the evils of alternate booms and slumps which bring with it periods of extensive unemployment.

Fundamental Data Necessary

Recommendation No. 1 is the collection of fundamental data. This must be obtained from individual establishments and it is essential that all manufacturers see the wisdom of submitting figures of the condition of their own establishment. This information, to be of value, must be complete and accurate but on the other hand, only the essential facts in the simplest possible form are required.

Recommendation No. 2 calls for a larger statistical service. In discussing this recommendation, the committee advises the expansion and standardization of the statistics now collected by state and federal bureaus, the publication of employment statistics by the Federal Bureau of Labor Statistics, and a final summation and publication of all of these statistics by the Department of Commerce, in order that there may be promptly available a connected uniform series of facts about the trend of business.

Recommend Research

Recommendation No. 3 advises research and that further development with special research into economic forces, into business currents and into broad questions of economic method, is needed.

Recommendation No. 4. "Control of Credit Expansion by Banks."

Recommendation No. 5. "Possible Control of Inflation by the Federal Reserve System."

Recommendation No. 6. "Control by Business Men of the Expansion of Their Own Industries."

Withholding Public Construction

Recommendation No. 7. "Control of Private and Public Construction at the Peak." This is in line with the recommendation of Secretary of Commerce Hoover, to the President recently, that all Government construction be done during dull times as much as possible, to give free swing to private construction during times of great building activity and to help relieve depression during the dull times.

Recommendation No. 8 advises a study of conditions in public utilities.

Recommendation No. 9 advises the establishment of unemployment reserve funds during prosperity from which the worker may draw upon during periods of compulsory unemployment. "The idea of employer, employee, or both, contributing during periods of employment to a reserve fund under separate or joint control to help sustain the worker when unemployed in periods of depression and to equalize and stabilize his purchasing capacity, merits consideration."

Recommendation No. 10 endorses the recommendation of the President's Conference on Unemployment to establish a national system of employment bureaus.

Business Men Should Study Conditions

"In conclusion," the report states, "the committee would reiterate its conviction that unless business men, bankers, and others who are responsible for policies and practices in industry begin without delay to study and to act in order to meet the problems of unemployment and business cycles, solutions which may prove to be fundamentally unsound will be attempted without the benefit of practical experience. No problem before the business world today, offers a more inspiring challenge to sound industrial leadership."

* * *

FORM EASTERN KENTUCKY GROUP

A number of brick men recently met at Lexington, Ky., and formed the Eastern Kentucky Group of the Kentucky Clay Products Association, composed of the central and eastern Kentucky manufacturers. W. H. Hall, of the Maysville Brick Co., was made chairman of the group. F. O. Schneider, of Nicholasville; H. T. Miles, of the Spahr Brick Co., Maysville; L. L. Richardson, of the Barbourville Brick Co.; T. Bishop, of the Southern Brick & Tile Co., Louisville; Matt Clay, of the Engle Building Supply Co., Lexington; James T. Howington, of the Coral Ridge Clay Products Co., and J. Crow Taylor, Louisville, secretary of the State association, were among those present. The question of equitable freight rates took up most of the discussion.

The next meeting will be held July 12 at Middlesboro, at the same time as the summer meeting of the Kentucky Retail Lumber Dealers' Association.

* * *

STANDARD DIMENSIONS FOR FACE BRICK

At a meeting called by Secretary Hoover, Department of Commerce, the American Face Brick Association Committee on Standard Sizes met, on May 11, with representatives of the Specifications Committee of the Supervising Architect's office, Treasury Department; American Institute of Architects; U. S. Chamber of Commerce, and the Division of Simplified Practice, Department of Commerce. The meeting concluded with the unanimous adoption of a resolution to the effect that the Department of Commerce be asked to call a general conference, consisting of representatives of face and common brick manufacturers, dealers, architects, contractors, builders and Federal representatives, some time during the week of June 18 to consider the adoption of the following standard dimensions: For rough face brick—

Approximately $8 \times 2\frac{1}{4} \times 3\frac{3}{4}$ inches; for smooth face brick—Approximately $8 \times 2\frac{1}{4} \times 3\frac{7}{8}$ inches; for common brick—Approximately $8 \times 2\frac{1}{4} \times 3\frac{3}{4}$ inches.

At the request of Secretary Hoover, the American Face Brick Association made last fall a survey of the dimensions in which so-called standard sized face brick were being manufactured. Reports from 167 plants thruout the United States indicated that some 39 different sizes of rough face brick and 36 different sizes of smooth face brick were being made.

From the survey, which was made the basis for discussion, it was roughly estimated that from 80 to 90 per cent. of the country's face brick production is of the average dimensions covered in the resolution adopted. The matter of variations in shrinkage was frankly discussed. Special care will be taken to perfect a resolution for adoption at the ratifying meeting which will make it clear that "approximate dimensions mean the averaged dimensions of the shipment.

The personnel of the American Face Brick Association's Committee on Standard Sizes is as follows: P. B. Belden, chairman; A. B. Adams, W. J. Degenhart, S. M. Duty, T. P. Mahoney, Eben Rodgers.

* * *

NORTHWEST ASSOCIATION ENGAGES CHEMIST

The Clay Products Association at Seattle (Wash.) has retained a consulting chemist in the person of Charles A. Newhall of that city for the purpose of investigating the clay industry of the Pacific Northwest. Mr. Newhall is a graduate of the University of California and since 1907 has been engaged in the manufacture, testing and use of various clay products. The appointment has been received with some enthusiasm thru the Northwest, where Mr. Newhall is well known and it is believed that his investigations will materially assist the development and promotion of the clay industries of the Northwest.

* * *

NEW JERSEY SUMMER MEETING JUNE 15

The regular summer meeting of the New Jersey Clay Workers' Association and Eastern Section of the American Ceramic Society will be held at Trenton, N. J., at the Country Club, on Friday, June 15. Arrangements are being made for a large attendance. The meeting will open with a luncheon at the club, as in previous years, and following, an afternoon session will be given over to a number of pertinent technical papers and discussion of problems now confronting the industry.

* * *

TO STUDY MINERALS AT RUTGERS

The Secretary of the Interior on May 14 designated Rutgers College, New Brunswick, N. J., as the location of a new mining experiment station of the Bureau of Mines, which will specialize in problems involved in the production and utilization of the non-metallic minerals. These minerals include bauxite, cement, clay, feldspar, Fuller's earth, graphite, gypsum, lime, mica, phosphate, rock, salt, sand and gravel, sand-lime brick, slate, stone, sulphur, mineral paints, garnet, asbestos, and talc. The value of these non-metallic minerals produced annually in the United States is in the neighborhood of a billion dollars.

* * *

NEW CHIEF CHEMIST FOR BUREAU OF MINES

Richard B. Moore, chief chemist for the United States Bureau of Mines, is resigning his post, to take effect June 1. He will become associated with the Dorr Co., engineers, of New York City. He will be in charge of the company's development work and will act as consulting engineer in certain of the company's projects. He has served 11 years with the Bureau of Mines and will be succeeded by Dr. Samuel C. Lind.

Dr. Lind has had a very thoro training in scientific work which fits him admirably for the position he is about to take. He is at present associated with the Bureau and is in charge of its activities in the experimentation with rare and precious metals at Reno, Nev.

* * *

MEASURING THE PLASTICITY OF CLAY

Every worker of clay realizes the importance of plasticity and knows, in a general way, what plasticity is and yet scientists have not been able to agree on a definition for it. We know that some clays are more plastic than others and yet it is extremely difficult to determine just how plastic any clay or other material is. In making pottery and some other clay products it is necessary to include other materials which are not plastic along with the plastic clay and the clay used for such purposes must be more plastic than would be necessary if it were to be used by itself, according to F. P. Hall, of the Bureau of Standards.

In a report of the Bureau of Standards a number of proposed methods for measuring this property are described and it is shown that none of them is entirely satisfactory for application to clays.

An account is given of a large amount of work done in a study of the operation of the method of Bingham and Green. This method consists of forcing the material thru a tube of small internal diameter, measuring the rates of flow under various pressures. It had been stated by the originators of this method that the values obtained could be reduced to values independent of the size of the tube by the use of certain formulas derived by them, but it does not appear, from the results of the present investigation, that this is the case so far as clays are concerned. However, some interesting results are obtained by using the same capillary tube with the different clays. It is believed that this study will assist in the development of a practical method for measuring plasticity.

This report is Technological Paper No. 234 of the Bureau of Standards, entitled "Methods of Measurement of the Plasticity of Clays." It may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 10 cents.

* * *

PRODUCTION OF BAUXITE IN 1922

The production of bauxite in the United States in 1922 was 309,600 long tons, valued at \$1,935,800, according to figures collected for the Department of the Interior by James M. Hill, of the Geological Survey. These figures show an increase of more than 100 per cent. in quantity and of more than \$1,000,000 in value over those for 1921. The Arkansas field produced 266,799 tons, more than double the output in 1921, but still less than half of its yearly maximum. The eastern fields, in Alabama, Georgia, and Tennessee, produced 42,810 tons, nearly four times as much as in 1921 and about the maximum output from those fields. Georgia leads, with an output of 30,417 tons.

Bauxite produced and consumed in the United States, 1921-1922, in long tons:

	Domestic production	Imports	Exports ¹	Apparent Consumption
1921	139,550	27,587	5,942	161,195
1922	309,600	22,219	19,617	312,202

¹ Includes bauxite concentrates.

Domestic bauxites consumed by different industries, 1921-1922, in long tons:

	Aluminum	Chemical	Abrasive and Refractory	Total
1921	91,660	41,030	6,860	139,550
1922	211,550	78,550	19,500	309,600

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

CHINA CLAY IN CALIFORNIA*

By Thos. Normile

CALIFORNIA IS A LAND of wonderful opportunity as to its clay resources, and, as new deposits are discovered and located and their possibilities and usefulness studied for development, it is safe to say that California (and particularly Southern California) will be very much in the lead as a producer of high-grade clays, or china clay, and will rank with such states as Georgia, Florida, Tennessee and North and South Carolina; these states being large producers of china clays for a number of years, to the ceramic industries of the country, and to the paint and paper industries.

English Clays Now Standard

With regard to china clay (or kaolin) England has set the standard for the past 250 years, wherever the high grade clays are used, or even since their discovery by Cookworthy at St. Austall, Cornwall, in 1768. If civilization had started in the West and progress had moved eastward, who knows but what the clays of California would be the standard today, and not the china clays of England, for it is a fact not generally known that the first whiteware manufactured of which record is made, was manufactured in Burlington, New Jersey, U. S. A., in 1685, by Dr. Daniel Cope, one of the Colonial Governors of New Jersey, and this ware was manufactured out of clay found in America.

In 1688, the works were inventoried and offered for sale, and notice published as follows:

"I have erected a Pottery at Burlington for white china-ware, a great quantity, to the value of 1,200 pounds, has already been made and vended in the county and neighboring colonies and ye islands of Barbadoes and Jamaica, where they have been in great request. I have two houses and kilns with all necessary implements, diverse workmen and servants. Have expended thereon about 2,000 pounds."

Plant Established in 1744

The above extract was taken from the "Pottery Industry," also the following paragraph, which was taken from "Pottery and Porcelain in the United States" by Edwin Atlee Barber:

"A patent was taken out in 1744 by Edward Hylyn of the parish of Bow, in the county of Middlesex, Merchant, and Thomas Frye, of the parish of West Ham, in the county of Essex, Painter, for the manufacture of chinaware and the following year they enrolled their specifications, in which they state that the material used in their invention as an earth, the produce of the Cherokee Nation in America, called by the nation 'unaker'."

*Editor's Note.—This article is taken from Mining in California, a publication issued monthly by the California State Mining Bureau. It contains some very interesting facts regarding the early history of the whiteware industry.

The information contained in the above two paragraphs quoted will no doubt be a surprise to many pottery and clay men, who are not already acquainted with this fact, and who are of the opinion that china clay and the whiteware pottery industry was started in England, before it was in America, but, as previously stated, it was 24 years later before china clay was first discovered by Cookworthy in 1768.

Most Important Kaolin Deposits

Josiah Wedgwood wrote of a pottery that was established in South Carolina, U. S. A., in 1765, that was operated by workmen from England, and "having one of our American master potters to conduct them."

The most important districts producing china clay today in America are the southern states already mentioned, Georgia, Florida, Tennessee, North and South Carolina, and California, and the least known of these districts is California, for it is only in the past few years that china clay was prospected for to any extent.

The writer has a personal knowledge of a china clay in California that was first discovered over 30 years ago. Samples of this clay were sent to various potteries in the East, and also to Germany and England, and wherever it was tested and its finished samples exhibited, it was pronounced about the finest china clay ever found. A chemical analysis of this clay made by Dr. Frank K. Cameron, of Washington, D. C., shows on analysis 66 per cent. silica (SiO_2) and 22.8 per cent. alumina (Al_2O_3), the difference from 100 per cent. being mainly water, with only a very faint trace of iron, which positively does not show in the firing. This composition shows a somewhat higher ratio of alumina to silica than in the theoretical kaolin of 46.3 per cent. silica, and 39.8 per cent. alumina, balance 19.9 per cent. water.

The "Lost" Deposit

This clay is a very desirable clay for manufacturing all kinds of whiteware, such as general ware, sanitary and electrical porcelain. It is known today as the "Lost Clay" and will be on the market in the not too distant future. I may also add that this "Lost Clay" will be of exceptional value to the paint and paper trade, especially on the Pacific Coast, due to its plasticity, freeness of grit and whiteness under water.

This "Lost Clay" deposit was first discovered in 1884 and has been very much sought after ever since. The original discoverer of this deposit of clay, after sending samples of it broadcast thruout the East, including Germany and England, very suddenly died. Two years ago, this long dormant deposit was rediscovered by the writer, by accidentally finding a sample of the clay on which the original discoverer had carved his name, date and location, in 1884. The reading on this old sample of clay is still discernible and is considered quite a curio by the owner. This old deposit would be working now, but the parties now interested are desirous of securing some adjacent property that will facilitate the working of the clay property.

California has some very plastic china clays, some of them extremely so, which makes them adaptable to the manufacture of table ware, sanitary ware and electric porcelain.

The uses of clay are many and varied, and new ones are being found constantly.

Clay is one of the most widely distributed minerals, and a little more cooperation among interested parties would help materially.

The California State Mining Bureau has made vast strides in the past few years in clays, and all non-metallic minerals.

The State Mining Bureau, in January, 1920, issued Preliminary Report No. 7, entitled the "Clay Industry in California," that is a very good guide to the prospector and others interested in looking for clays, and, on page 13, under "Field Examination," will be found some valuable information that will be of great assistance in this interesting work.

University Should Have Ceramics Department

A Department of Ceramics in the State University at Berkeley and Los Angeles would be a great asset in helping with the physical and chemical analyses needed in the testing of the various clays that are almost daily being sent in from the mountains and deserts of the Pacific Coast states.

In England, years ago, when the clay industry was somewhat more or less of a problem, the Government pooled its interests with the people interested, and the results are well known.

Need Washing Plant in California

What is needed in California at this time is a plant for the washing of china clays. The writer knows of deposits of good white clays, suitable and adaptable for the paint, paper and pottery trades, but they need washing to eliminate the impurities they now contain, such as free silica, mica, pyrite and limonite. Hardly any one company is large enough at this time to make a sufficiently comprehensive research of this industry on this coast.

The manufacturing concerns in California today that are users of high grade white burning china clays in the ceramic industry are the following:

The Pacific Porcelain Ware Co. is operating two plants. It has a six kiln pottery at Richmond and a five kiln pottery at San Pablo.

The West Coast Porcelain Co., at Millbrae, has a six kiln pottery.

Potteries in California

These two very progressive concerns are manufacturing a complete line of sanitary ware and are both users of California clays.

The Homer Knowles Pottery Co., located at Santa Clara, is making a general line of hotel and dinnerware. They are using some local clays.

The Empire China Co., at Burbank, is operating a seven kiln pottery, and is making a complete line of hotel and dinnerware. This concern is using local clays, getting its china clay from its own large deposit in Lincoln County, Nevada.

The Mission Potteries Co., Los Angeles, (formerly the Standard Pottery) is operating a three-kiln plant and is manufacturing a line of hotel ware and at present is using some foreign clays, but in the near future will operate with local clays exclusively.

Floor and Wall Tile Made

The China Products Co., Los Angeles, has a three-kiln pottery. This company manufactures a line of hotel and dinnerware, and is using all local clays.

The American Encaustic Tiling Co., Los Angeles, is operating a nine kiln pottery, and is manufacturing a very high grade of floor, wall and mantel tile. This large concern is also using local clays.

The T. C. Prouty Pottery Co., located at Hermosa Beach, is manufacturing low potential electric porcelain spark plugs and white floor tile. This new concern, after a few years of

experimenting with all kinds of clays, is using California clay almost exclusively.

* * *

SEBRING TO BUILD IN LOS ANGELES

The Sebring (Ohio) China Co. is planning the construction of a new chinaware plant in the neighborhood of Los Angeles, it is said.

* * *

ENGLISH SETTLE STRIKE

By Special English Correspondent

By an eleventh-hour settlement of the prolonged wage dispute in the English pottery fields some 60,000 operatives will remain at work instead of finding themselves locked out by the potters as would have been the case had the employers' notices to the operatives expired without a settlement having been reached. The news from Hanley has removed one of the greatest obstacles to the pottery industry in England and a much more cheerful and confident outlook now is apparent.

The drop in the operatives' wages is around ten per cent. and many wholesalers and jobbers as well as the retail trade have been fondly hoping that there would be a corresponding cut in pottery prices. The past month or six weeks has seen a check in demand due to this popular delusion.

There will, the potters say emphatically, be no further reduction in selling prices. The outcome of this authoritative statement doubtless will be a quickened demand for pottery here. The shops are not too well stocked and now that the trade knows there will be no cheaper pottery ware there is likely to be a scramble to renew stocks with a representative selection of the newest designs and patterns.

Pottery production just now is on a higher level than at the beginning of the year, unemployment standing at 12 per cent. The call for home market goods is chiefly in "cheap" and "seconds." There is an upward tendency in the export market so far as volume is concerned and the imperial trade in pottery is becoming a profitable phase of the industry. The past month's pottery business with the United States is listed as "moderate." The big export earthenware houses seem to be doing better than any other pottery houses here so far as trade with North and South America is concerned. The tile trade is bucking up due to the increasing activities in the building line.

As regards the technical development in the industry the new pottery modes here reflect a distinct influence from Spain and Czecho-Slovakia. There undoubtedly is a great demand just now for pottery from these two countries. Jugs and dishes are treated geometrically in design with blues, browns and yellows on bluish-white or pinkish-white grounds. Tall shaped vases done in geometrical designs in clear larkspur blue and orange are reminiscent of pottery from beyond the Pyrenees. Tea and breakfast sets decorated with gaily-colored flowers and birds reflect the Czecho-Slovak influence. Some fine Walberswick ware enables the English hand-thrown pottery to be seen at its best. These are done in brilliant blues and greens, both striped and plain with different colored linings to bowls and jugs and shapes based on various peasant lines.

The English China Manufacturers' Association has issued a circular to the retail trade pointing out that the wage reduction is small and that selling prices must remain stabilized at their present level for a long time to come unless something occurs to bring about much lower prices in fuel and certain other materials and not at present indicated. The earthenware manufacturers concur in this, reasserting the impossibility of lower selling prices. "The Big Five" have orders for three months ahead with the United States, South America and Canada.

NILOAK POTTERY WINS GOLD CUP

The product of the Niloak pottery at Benton, Ark., has been pronounced by the Associated Advertising Clubs of that state, with headquarters in Little Rock, as the best advertisement the state possesses. Not so many weeks ago there was a "showing off" of the manufactured products of Arkansas in Little Rock, and people came from miles 'round to see just what was produced in their native heath.

But the big show, interesting as it was in all detail, came mighty near being "busted up," and all because of the interest



J. W. Heyten, Owner of the Niloak Pottery, Is Himself an Expert Thrower.

the people evidenced in the manufacturing of art pottery—a new line of work to those who have long been accustomed to talking about lumber, oil and rural activities.

On top of all this, the Advertising Clubs said, "there's nothing to it," and then awarded a 16-inch gold loving cup to J. W. Heyten, owner of the Niloak pottery at Benton, as the producer of an article that advertised the state of Arkansas more than all others.

CO-OPERATIVE ELECTS OFFICERS

At the annual meeting of the stockholders of the Potters Co-operative Co., of East Liverpool, the following officers were elected: President, Harry A. McNicol; vice-president, Mrs. O. B. McNicol; treasurer and sales manager, Lester B. McNicol; secretary, William C. Brown. Mr. Brown takes the place on the board of the late Mort C. McNicol, who was also secretary of the corporation.

BIG EXPANSION PROGRAM OF TRENTON FIRMS

Trenton, N. J., potteries are running high with the present period of prosperity in the industry, and practically every plant is operating at peak capacity, with more orders ahead than can be handled comfortably. The general ware plants are giving employment to their regular working quotas, while sanitary ware producers have replaced a number of previous workers with the installation of other machinery; these latter potteries are now securing the same outputs with fewer men.

Electrical porcelain potteries are quite busy and there is an active demand for specialties from the electric manufacturing companies. The heavy call for production is responsible for a number of plant additions, now under way or about to be launched. The Mercer Pottery Co., Muirhead Avenue, specializing in general ware for hotel service, will commence the erection of a new one-story addition to cost about \$14,000, exclusive of equipment. The Elite Pottery Co. has arranged

for the construction of a new pottery extension at its sanitary ware plant on Enterprise Avenue; it will cost close to \$19,000, exclusive of equipment. The Thomas Maddock Sons Co., manufacturer of sanitary ware, has let a contract to the Karno-Smith Co., Broad Street Bank Building, for the construction of an addition to its pottery at Perry and Carroll Streets, and the work is in progress. The Star Porcelain Co., specializing in the production of electrical porcelain products, has arranged for a new die works to be located on property lately acquired on West Street, Annandale, N. J.; a one-story building will be erected, 46 x 90 feet, to give employment to about 30 men, exclusively for steel die production for use at the Trenton works. The company will remove its present plant at Clinton, N. J., to the new location.

HICKMAN SELLS INTEREST IN COMPANY

The interest in the Smith & Phillips China Co., East Liverpool, held for years by V. Q. Hickman, of Pittsburgh, has been purchased by Paul V. Robinson, of Akron, Ohio, who has been elected president and secretary of the corporation. Other officers just elected include Mrs. E. W. Robinson, vice-president; H. Dan Smith, treasurer and general manager. The vacancy on the board of directors caused by the retirement of Mr. Hickman has been filled by the election of J. Clare Smith, son of the late T. J. Smith, of this firm.

INDUSTRIAL ART SCHOOL TO EXPAND

The School of Industrial Arts, Trenton, N. J., one of the leading institutions in practical ceramic instruction in this section, has perfected plans for the erection of a new building to accommodate the steadily increasing number of students. The new building will adjoin the recent school extension on Quarry Street, and will be used for mechanical and other service. It is estimated to cost about \$50,000. The City Commission is arranging an ordinance to cover the necessary appropriation.

WANT STONEWARE RATES EQUALIZED

Representatives of the Western Stoneware Co., of Monmouth, Ill.; the Red Wing (Minn.) Stoneware Co., and railroad officials of the Northern Pacific and Chicago Milwaukee & St. Paul railroads, were at a hearing before Examiner Leo J. Flynn, of Dubuque Ia., of the Interstate Commerce Commission. The question involved is over freight rates from points in Illinois to the Pacific coast.

Recently the Red Wing Stoneware Co. made application to the Milwaukee railroad for a reduction in freight rates on their wares from Red Wing to points on the Pacific coast. Similar application was denied, it is said, the Western Stoneware Co. Because of the reduction granted the Minnesota company the Illinois representatives contend it is injuring their business.

INSULATING BUSINESS IS GOOD

The Brunt Porcelain Co., located at Chaseland, a suburb of Columbus, Ohio, is having a good run of business in porcelains for all sorts of insulation. The company also manufactures ground glass insulators. W. F. Steele, the general manager, reports that all improvements to the plant and machinery, started about a year ago, have been completed and the capacity is now up to what is required. A large force of men is being employed continually.

TO INCREASE WORKING FORCE

The Alliance (Ohio) Pottery & Sales Co., a decorating concern, has been operating two or three months with a force of about 25 persons. This number is to be increased to 100.

WILL BUILD FACE BRICK PLANT

The Alliance (Ohio) Clay Products Co., one of the two large face brick manufacturing companies in that city, will

Are You Regretting

THE heavy demand for clay products during the past month has brought home to manufacturers their lack of capacity to fill orders during periods of rapid expansion.

The Minter System will DOUBLE YOUR PRESENT CAPACITY without shutting down more than two kilns at a time.

The Minter System increases speed of operation in all stages of manufacture without injury to the product. Burns have been brought down to 72 hours after the installation of the Minter System.

In the ordinary periodic round down-draft kiln, the draft is never what it should be. As the draft is a natural one, during the watersmoking period when temperatures are low, the movement of air thru the kiln is very sluggish and water is taken up only in small quantities by the saturated air from the damp ware. With the Minter System mechanically regulated draft, the movement of air is very rapid and the moisture in the air is picked up readily by the unsaturated air decreasing the watersmoking period by 75%.

As the burn progresses the stack temperature rises and the draft becomes intense, drawing with it about 300% excess air. This

THE MINTER SYSTEM

Home Office:
ALBANY, GEORGIA

Branch Office: 215 Doctors Building
COLUMBUS, GEORGIA

DON'T BUILD BEFORE YOU
KNOW *the* MINTER SYSTEM

Minter

Lack of Capacity?

urning period takes the greatest amount of coal of any period and it is here that savings of a seemingly trivial nature mount. This excess air must be heated as it rushes in and takes 40% extra fuel, not to mention loss of time and radiation.

th the Minter System this heat is utilized in preheating the remaining kilns and brick temperatures recede from 1200 deg. to 250 deg. Careful crown insulation and scientifically designed kiln bottoms give a uniform heat with fewer resets and bats.

Fewer Kilns—Less Fuel—Better Product

und down-draft Minter Kilns are superior to regular continuous kilns, continuous tunnel kilns and railroad tunnel kilns, because of independent control, ability to burn mixed product, far cheaper cost, and ability to operate at any fraction capacity.

Some successful installations of Minter Systems are:

The Citadel Brick & Paving Block Co., Ltd., of Quebec, Canada.

The Dixie Brick Co. of Columbus, Ga.

The Flint River Brick Co. of Albany, Ga.

other installation of round down-draft kilns can approach this low fuel consumption burning ware.



System

Management and Superintendence

RUNS 675 TONS THRU CONICAL ROLLS DAILY

Chicago brick plants are the envy of every brick manufacturer because of the low cost involved in manufacturing their brick. Part of this is due to the nature of the clay, but a large part is also due to efficient production methods. One of the interesting installations at the plants of the Illinois Brick Co. is the method of crushing the clay. Extraordinary results are achieved with ordinary conical rolls.

The Chicago clay is filled with limestone pebbles, which must be taken out before the clay can be molded into brick. This it is the business of the conical rolls to do. The clay is passed thru two sets of rolls, which have the enormous capacity of 675 tons every eight hours. Frank Lambert, general superintendent for the Illinois Brick Co., stated that the clay is dumped into a disintegrator and fed from that machine into the small end of a pair of corrugated conical rolls. The corrugations on this roll are in the form of a right and left screw so that the corrugations interlock. Both rolls are driven at the same speed. The clay, after passing thru this pair of rolls, is fed into a pair of plain rolls of approximately the same size. One of these, however, is driven a little faster than the other. The secret of the tremendous output is in the manner of placing these rolls. Instead of setting the shafts on a level, the top of the roll is set horizontally. This makes the shaft incline slightly downward toward the large end of the roll.

Mr. Lambert said this is a patented construction and is the secret of the ease with which the Illinois Brick Co. is able to remove limestone pebbles from its clay. The path of the stone is slightly downward instead of slightly upward, as is the case when the shafts are placed horizontally.

The rolls are set as close as possible to insure an output of sufficient clay for 300,000 brick every eight hours, even tho this means that ten per cent. of the clay fails to go thru the rolls and is discharged at the end of the rolls together with the stone. These rolls are about 22 inches in diameter on the large end and 16½ inches on the small end. They are 24½ inches long with a 3 15/16 inches shaft and are operated at a speed of 250 r. p. m.

DELIVERING BY MOTOR TRUCK

Some very interesting figures have been obtained from a manufacturer of motor trucks regarding the delivery of brick with this equipment. There are many things to be considered in the economical operation of motor trucks for delivery purposes and the following will give some helpful suggestions to the manufacturer who is considering using this type of equipment.

"Without a doubt a motor truck can be used to good advantage where the roads are good and grades are not too great. There is no reason why motor trucks and trailers would not be the ideal way of handling the present difficult transportation situation, to give temporary relief.

"This is true, however. Brick is a low priced commodity in comparison with weight. A 3½-ton truck with its normal overload could handle 2,000 brick and this size of truck and a trailer might accommodate together, 5,000 brick. If the gross return for this equipment is \$35 a day within a radius permitting two trips a day, this would give a delivery cost of \$3.50 per 1,000 for the brick, or on a single trip a day would give a cost of \$7 per 1,000 brick. This would represent about a 60 mile radius. In this case, it might be possible to work out a method of using two drivers and running the truck longer than ten hours a day.

It would be possible to furnish a truck and a specially constructed trailer which would permit handling as high as 10,000 brick to a load. The limiting factor would be securing permission to put the equipment over the roads. This objection could be overcome, however, by providing sufficient tire surface to distribute the load over the required area."

A NEW USE FOR A STEAM SHOVEL

A new and rather ingenious use of the steam shovel has been devised by Mr. Tom Madden, superintendent of the Superior Stone Company, near La Grange, Illinois, and is explained in the "Hints and Helps for Superintendents" department of Rock Products.

It seems that one of the chief problems confronted by Mr. Madden in connection with his quarry operation was the depreciation on his quarry cars. The principal cause of this trouble was that the constant dumping of rock upon the iron floor of the car battered them and caused them to sag until the bottom of the floor scraped upon the wheels or protruding stones in the roadbed. This is where the steam shovel was to come in handy.

The mis-shapen old car bottom was removed from the car and placed upon a smooth flat surface near the shovel. A few skillful backward strokes of the dipper drawn over the plate produced a plate that was practically smooth, and as good as it was when it was originally made. It could be used again as a car bottom, and when used on the home-made, solidly-built frame this reclaimed car would last twice as long as the original one.

TAKING BELTS ON OR OFF PULLEYS

Here are some safety ideas which it is well to observe in putting belts on or off pulleys. These are practices approved by the Illinois Steel Co. and were published in their house organ of March 5:

To Throw Off—

Shut off power if possible.

Throw belt off **driving** pulley first—use a pole or stick—not your hand.

To Put On—

Shut off power if possible—or, if belt is running idle on overhead driving pulley, throw it off with a pole.

Put belt on **driven** pulley first.

Then put belt on **driving** pulley, using a rope or stick or belt pole to guide it on.

Don't put on by hand while pulley is running.

Don't let pole catch in spokes. Hold it at your side.

Don't let clothes catch on pulley, belt, or shaft.

If you use a ladder, it should have hooks over shaft or should be held by some one.

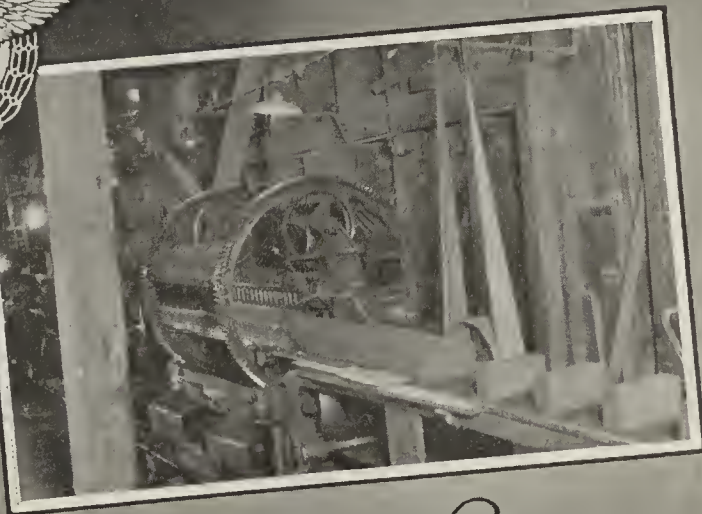
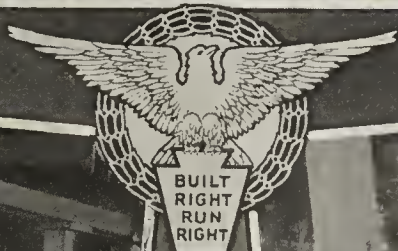
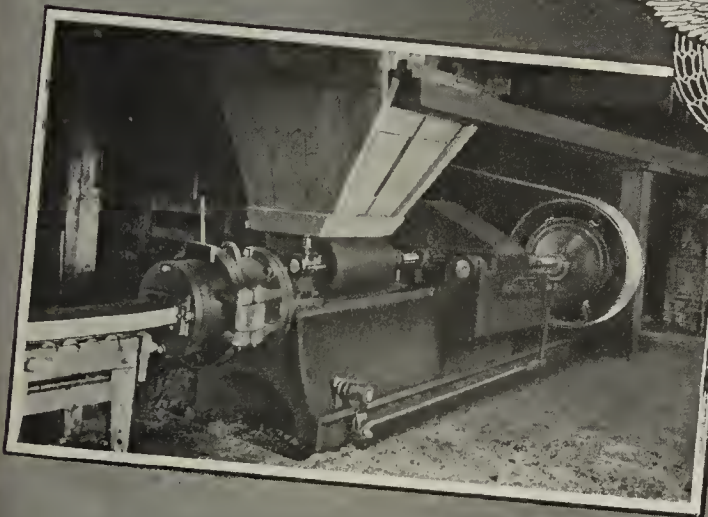
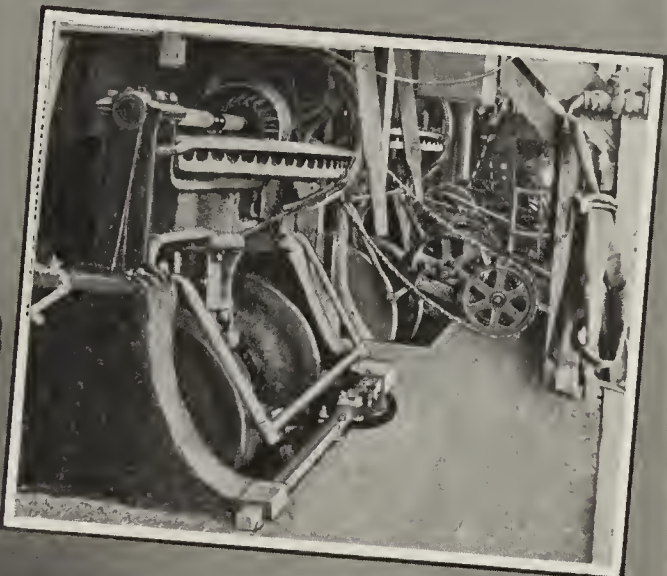
Don't put on a belt until some one has shown you how to do it safely.

HOLDS RESERVE CLAY SUPPLY IN STORAGE

The Adel (Ia.) Clay Products Co. has a storage bin which holds 2,600 tons of material. This storage is not required often because the shale planer and haulage equipment are at work at all times. It is good for emergencies, however, which may occur on the best regulated plant. This storage is kept in a large room or shed at the bottom of which there is a belt, built into the regulation trough covered with short removable boards. Of this 2,600 tons storage, 1,400 tons can be reclaimed or fed to the belt by gravity. It is very seldom that the haulage of shale is suspended long enough to make it necessary to reclaim the other 1,200 tons.

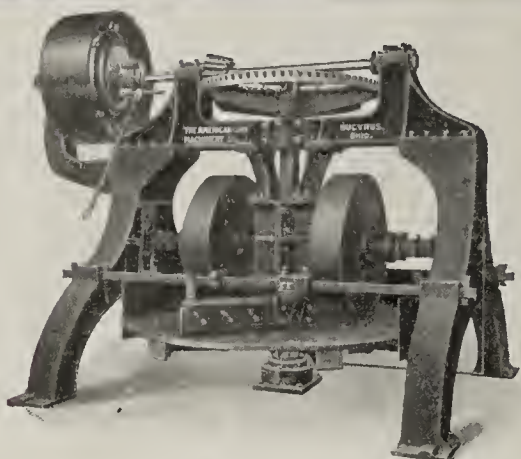
LOS ANGELES PRESSED BRICK COMPANY

LOS ANGELES, CALIF.

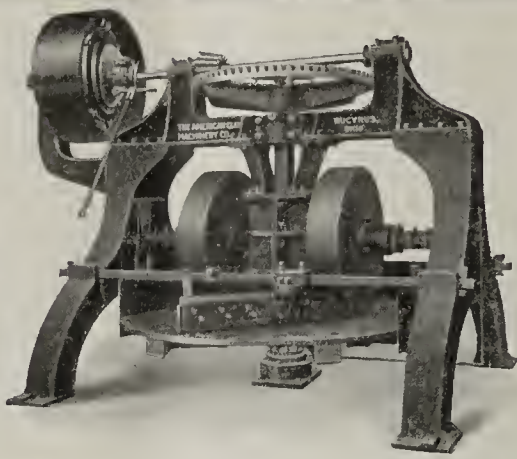


"Americans" Help to make a Success of the
Successful Los Angeles Pressed Brick Plant.

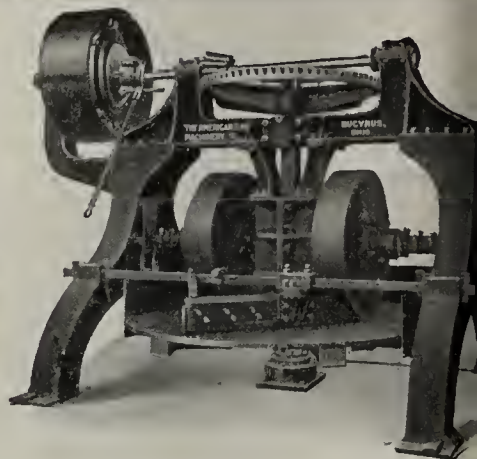
Los Angeles Pressed Brick Co. Uses



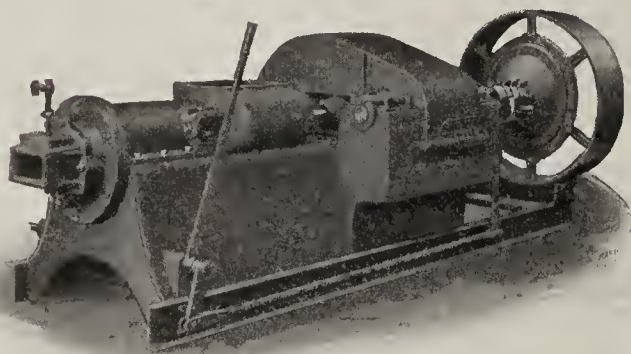
7 "American" 9 ft. Dry Pans



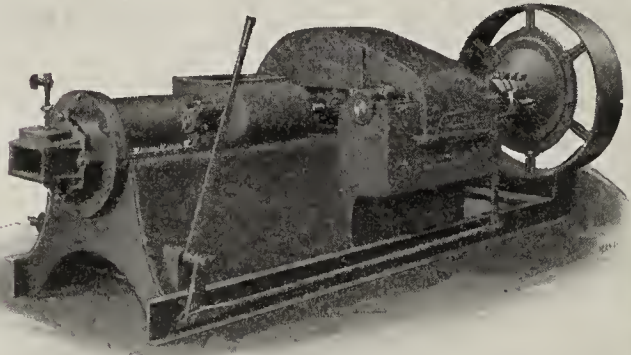
7 "American" 9 ft. Dry Pans



7 "American" 9 ft. Dry Pans



2 "American" No. 233 Auger Machines



2 "American" No. 233 Auger Machines



1 "American" No. 282 Pug Mill



1 "American" No. 281 Auger Machine



1 "American" No. 404 Combined Machine



1 "American" No. 29 Pug Mill

What the Los Angeles Pressed Brick Co. Thinks of the "American" Line

B. F. Cake, General Superintendent of the Los Angeles Pressed Brick Co., under date of April 25th, 1923, says:

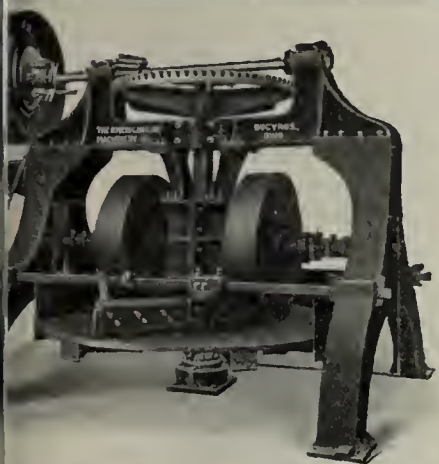
"We believe in standardizing and we believe in the Hadfield-Penfield machinery. Practically all of our dry pan disintegrators, wet pans, pug mills, auger machines and dryer cars are Hadfield-Penfield make, and are used in the manufacture of hollow tile, face brick and roofing tile at our various plants.

We produce a maximum of 31 tons hollow tile per hour on the No. 290 machine and 6,000 face brick per hour with the No. 404 combined auger machine and pug mill.

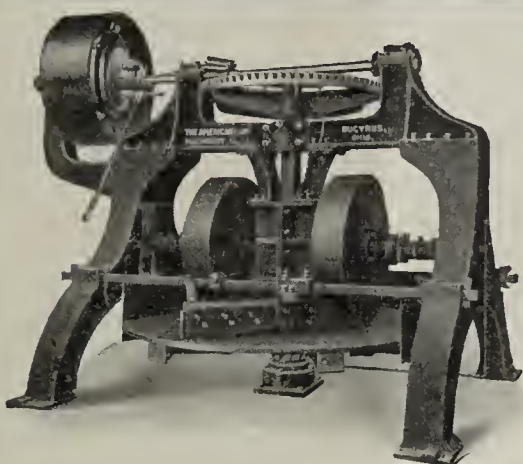
We are very much pleased with the high class of work performed by The American Line of Machinery as well as the simplicity of its mechanism."



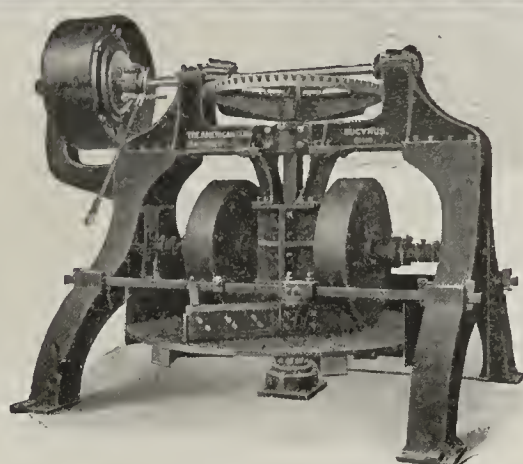
All These "American" Machines



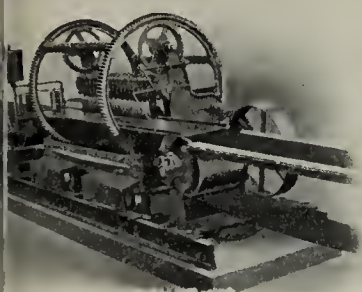
7 "American" 9 ft. Dry Pans



7 "American" 9 ft. Dry Pans



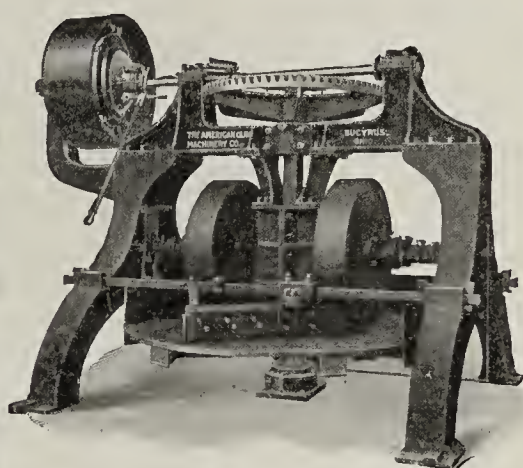
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"American" No. 242 Cutter



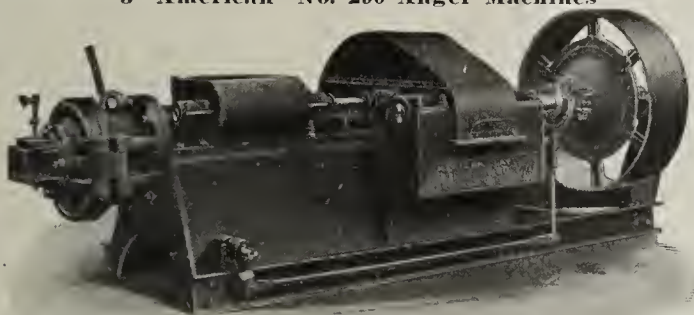
3 "American" No. 290 Auger Machines



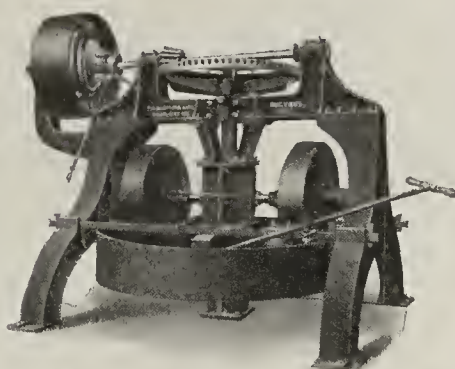
7 "American" 9 ft. Dry Pans



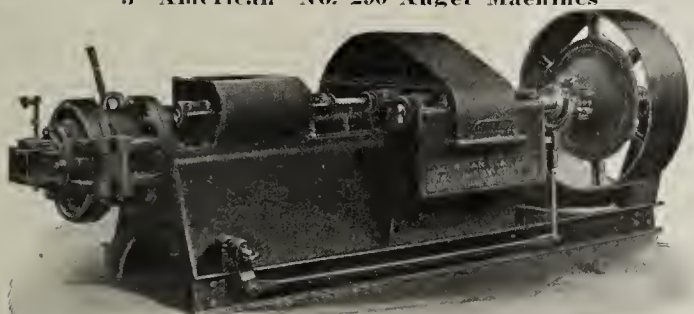
No. 292 "American" Reprass



3 "American" No. 290 Auger Machines



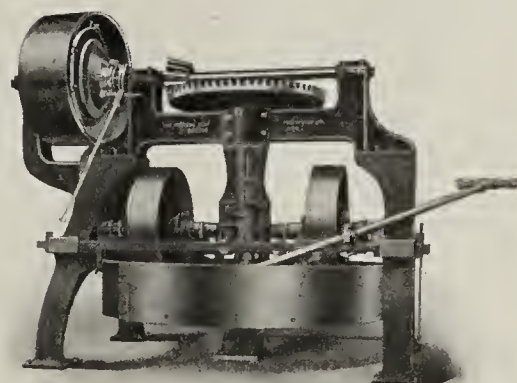
1 "American" 9 ft. Wet Pan



3 "American" No. 290 Auger Machines



3 "American" Disintegrators



1 "American" 8 ft. Wet Pan

PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO



When There's Coal To Unload

Years ago when labor was plentiful and its cost was low, it didn't mean much to unload a car or two by hand. Today with labor costs sky-high, you've just got to use machinery to do the job and to stay "in the black" on the ledger. One of the best aids on the market is the

JEFROB PORTABLE CAR UNLOADER

It is designed to solve various unloading conditions and it does it too—does it efficiently and economically for some of the largest Brick, Coal and other Industrial Plants in the country. Our many years of practical experience with material handling problems is at your disposal.

Get the Facts

Let us tell you more about the Jefrob Portable Car Unloader—how it works—what it has done for others—what it can do for you. An inquiry implies no obligation. Write us now.



Robbins Machinery & Supply Co.
444 W. Grand Ave. Chicago, U. S. A.
"Machinery for Moving Merchandise"

The Letter Box

A Place Wherein Letters
That Have General In-
terest Are Published
and Commented Upon

"A HALF-DOZEN FUNERALS MIGHT HELP"

The series of articles recently published in Brick and Clay Record relative to the problem of dealer distribution aroused a great deal of interest and many comments were received by the editors from manufacturers expressing views both pro and con. A particularly interesting letter which reveals the handicaps under which some manufacturers are laboring, due to the short-sightedness of a few competitors, is reprinted here.

"Gentlemen—I have read your article, 'Not a Brick House in Ten Years' and am moved to make some comment.

"We are located in a town of 15,000 inhabitants and if we would make the least effort to push brick we could increase its use at least 500 per cent., but what is the use? In our territory we have a few old timers in the business that do not belong to any organization, sell all their brick thru dealers who set the price. These manufacturers make just enough profit to let them live and the height of their ambition is to sell brick in the other fellow's town at a loss, if possible. If I would spend \$250 a month to increase the use of building brick, they would establish agencies to get the business away from me. Therefore, we aim to make only enough building brick for home trade.

"Fortunately, we do not have to depend on our sales of brick for building, and our off-grade of paving brick we sell at whatever price we can get. Paving brick manufacturers know that they must respect each other's trade if they want to succeed and consequently there is enough business for all.

"I have attended several meetings of the brick manufacturers in this district and have told them and would repeat it here, that the only salvation for the business is a half-dozen first-class funerals. That might help."

Questions and Answers

**Best Authorities in Every Clay
Working Branch Are Called Into
Consultation—Their Advice Is
Free to You, Thru These Columns**

*Address all communications intended for this
department to "Editor Questions and Answers,
care of Brick and Clay Record," Chicago*

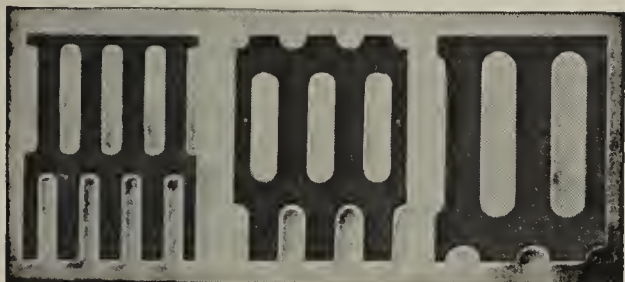
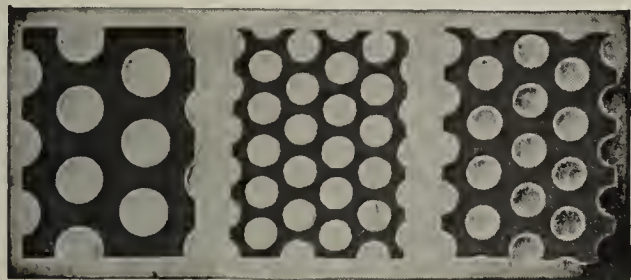
BUILDING A KILN CROWN

1,065. Tennessee.—If you have any information available regarding crown construction on 30 and 32 foot round kilns, will appreciate same, with particular reference to size and number of brick necessary. A crown built to radius one-fourth of diameter of the kiln is a much higher crown than we desire and we would like, if possible, to get the radius for a crown considerably lower than one-fourth radius gives us.

We have gone over the cards showing the firms to whom our Clay Products Cyclopedia has been sent and found your name therein. We are making this statement because we believe all of the data which you desire is contained in that book.

In the first column on page 79, you will find some data on the proper spring or circle for a crown of a down-draft kiln. On the basis of the data given for the rise of the crown, that is the vertical distance from the spring line to the top of the inside of the crown should be $7\frac{1}{2}$ feet. By taking the system of figuring a triangle, that is, the square

Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shapes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

THE IRONTON STORAGE BATTERY LOCOMOTIVE

If YOU want to find the most efficient and economical method of handling your haulage problem, then you should let our engineering department submit definite facts about the Ironton Storage Battery Locomotive and what it will mean in your own work. There is no obligation.

THE IRONTON ENGINE COMPANY
Ironton - - - Ohio

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Pittsburgh, Pa.

Branch Offices:
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Huntington, W. Va.

1618 Arcade Bldg.,
St. Louis, Mo.

511 Widener Bldg.,

Philadelphia, Pa.

905 14th Street, Denver, Colo.

409 Weber Road,

Columbus, Ohio.

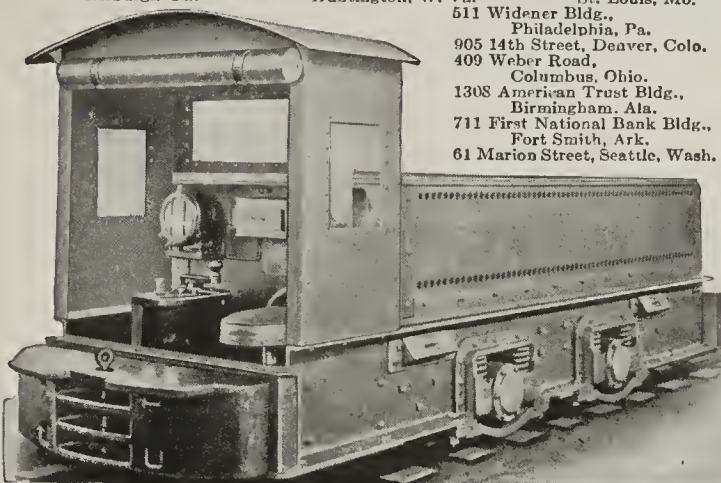
1308 American Trust Bldg.,

Birmingham, Ala.

711 First National Bank Bldg.,

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61 Marion Street, Seattle, Wash.



CAUCASIAN OXIDE MANGANESE

Powdered—Granular
For Speckled Effects

PRECIPITATE

CARBONATE BARIUM

For Prevention of Scum
Thereby Producing
Deeper and Richer
Color

**THE
ROESSLER & HASSLACHER
CHEMICAL CO.**

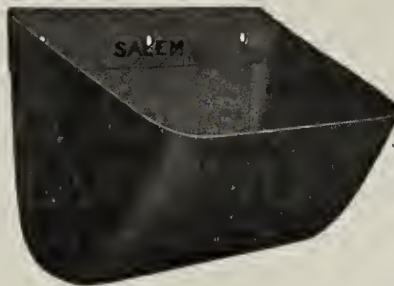
New York

Chicago
Boston
Philadelphia

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New Orleans
Pittsburgh

Kansas City
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Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

THERE'S A READY MARKET FOR---

Soft French Gray and Speckled Face Brick.

By the use of

National Manganese

manufacturers are able not only to produce these popular shades, but many other colors as well.

National Manganese has been the standard for 20 years

NATIONAL PAINT & MANGANESE CO.

P. O. Box 184, LYNCHBURG, VA.

Miners and Grinders for More than a Quarter Century



Write Today For Samples and Prices

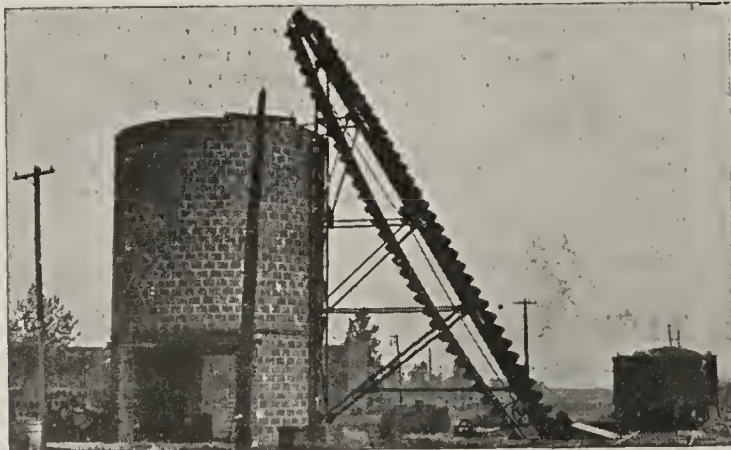
SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Sunbury, Ohio



of the hypotenuse equals the sum of the squares of the other two sides, we find that the radius of the crown for a 30 foot kiln should be 18 feet and 9 inches. We do not exactly understand what you mean by saying that a crown built to a radius of one-fourth of the diameter of the kiln is higher than you desire. One-fourth of the diameter of the 30 foot kiln should be 7½ feet and we cannot see how you could build a crown for a 30 foot span with a radius that small. Possibly you mean that for the crown advocated in the part of the Cyclopedia which is quoted, the rise equal to one-fourth of the diameter is too high. You can, if you wish, build your crown lower, in fact, we have known of arches and crowns built in flues and furnaces of the glass industry where the radius of the crown was equal to the span. In other words, for a 30 foot diameter kiln the radius of the crown would be equal to 30 feet. This will make a flat crown and if you use this construction, there are two things which you must guard against. First, brace the thrust thoroly with bands or buck-stays and secondly, avoid setting your ware so close to the crown that the top will be burned up.

On page 178 of the Clay Products Cyclopedia, we show a complete method of figuring the number of square brick and the number of shapes of fire brick to be used in each crown.

✻ ✻ ✻

RELATIVE COST OF COAL AND ELECTRICITY

1066. Illinois—Can you give me the relative cost of producing 50 horse power with coal (steam) as compared with electricity, with coal figured at \$5 per ton? In other words, what price per kilowatt would one have to pay for electricity to balance the price of coal at \$5 per ton?

The question which is asked here cannot be answered directly. The relative cost of producing 50 horse power with coal and electricity involves so many contingencies that only a guess can be given. To back up our own opinion of this, Brick and Clay Record wrote to several persons and concerns who were well informed on this subject.

D. P. Ogden, engineer, Streator (Ill.) Brick Co., gives the following information from his experience: "I have had very little occasion to estimate the cost of producing mechanical energy from coal lately and since no information has been given covering so many of the important factors it is impossible to state accurately what the cost of operating a steam engine would be under the actual conditions to be met. Certainly the price of coal will not be as apt to govern the operating cost as is the thermal efficiency of the engine and boilers, and so forth, to say nothing of the quality of the coal.

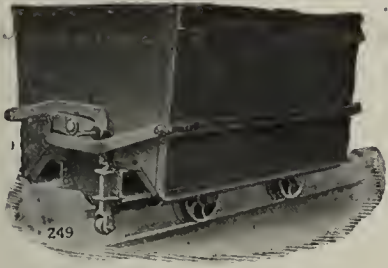
"If electrical energy can be purchased from a reliable source at a cost of two cents to three cents per kilowatt hour, my advice is to drive all individual units with good 40 deg. motors either direct connected or thru silent chains or spur gears which should in all cases be totally enclosed and running in oil and to keep in mind that all such equipment should be inspected and worn parts replaced at least once a year.

"I am quite sure that such an installation will pay more dividends, assuming of course that it is operated, than any other source of power for a total connected load up to several hundred horse power."

H. R. Straight, secretary and general manager of the Adel (Ia.) Clay Products Co., says: "I have no exact cost on what anyone can afford to pay for electric power in different territories, as compared with the price of coal, on account of the wide steaming ability of the various coals in different communities. I would say, however, that southern Illinois coal at \$5 per ton at the boiler would compare in the making of power in which an efficient engine was used with current at approximately 2.4 cents per kilowatt hours.

"You can easily see the various factors that enter into such a problem and why no exact statement can be made."

EASTON CARS



Gable Bottom Car

Main Office and Works:
30 Holley St., - Easton, Pa.

New York	Philadelphia	Pittsburgh
St. Louis	Norfolk	Savannah
Birmingham	Salt Lake City	Harrisburg
	San Francisco	

EASTON CAR & CONST'N CO.

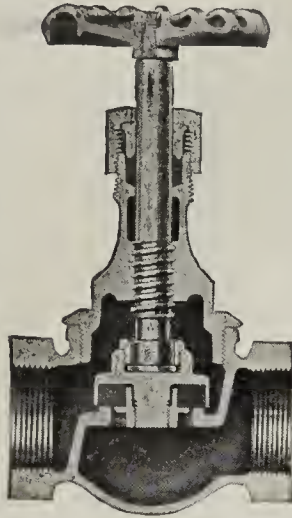


Made for maximum service
not merely the average



Jenkins Bros.

Assured Dependability



Sectional view, Fig. 106, Jenkins Standard Bronze Globe Valve.

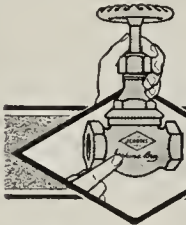
Jenkins Valves are strong and heavy, and so proportioned that they remain dependable when subjected to the strain of hard usage and severe service.

You can install them with confidence born of a knowledge that Jenkins Valves have been standard in high grade work for more than 50 years.

Jenkins Valves are made in Bronze, Iron, and Steel in types and sizes for all pressures and purposes—use them and you'll provide permanence.

JENKINS BROS.

80 White St.	.....New York
524 Atlantic Ave.	.....Boston
133 No. Seventh St.	.....Philadelphia
646 W. Washington St.	.....Chicago



Always marked with the "Diamond"

Jenkins Valves

SINCE 1864

ALLIGATOR

Scientific
STEEL BELT LACING



Practically and Scientifically Correct

BELTS give longer uninterrupted service when laced with Alligator Steel Belt Lacing, for Alligator is the strongest and most durable of all belt lacings. It is setting new standards in belting performances.

Every Alligator tooth is a vise, clinching around the belt fibers, holding them in equal permanent service.

Practically all authorities on belt transmission recommend Alligator. It is in use every day on millions of belts of every type and size and in every service.

Sold at Wholesale and Retail
the World Over

Flexible Steel Lacing Company

4671 Lexington Street, Chicago
In England at 135 Finsbury Pavement, London, E.C.2



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

FEATHER-STONE

INSULATION PRODUCTS
OF
DIATOMACEOUS EARTH
FOR
CONTINUOUS TUNNEL and
PERIODIC KILNS—

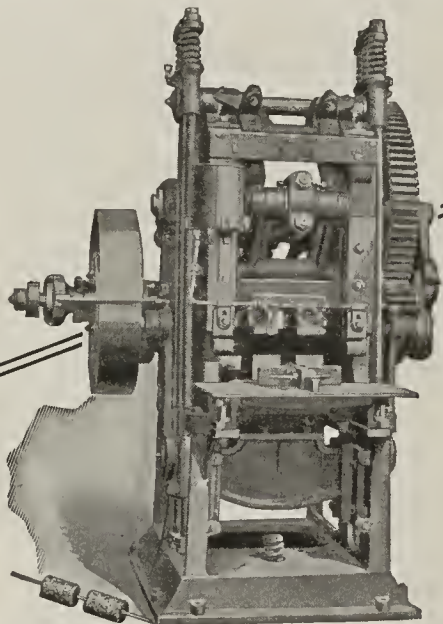
KILN FIRED BRICK
DRY POWDER
CALCINED AGGREGATE
(for insulating concrete)

FEATHER-STONE PRODUCTS
are being used by the
LOS ANGELES PRESSED BRICK CO.
for their HARROP TUNNEL KILN
now under construction.

FEATHER-STONE INSULATION CO.
606-607 Pacific Finance Bldg.
LOS ANGELES - - - Calif.



Page 237



We Repress Gloninger's Face Brick

In his new up-to-date plant, Mr. Gloninger has installed three "Richardson" Represses, for making his "waterproof" face brick. As he had used this make of repress many years, the above fact is sufficient commentary on his experience with them.

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office
918 Behan St., N. S. PITTSBURGH, PA.

The opinion of J. A. Polson, associate professor of steam engineering, Department of Mechanical Engineering, University of Illinois, gives the following information on the subject: "It is never safe to say that one could afford to pay a certain price per kilowatt hour for electricity when coal costs \$5 per ton. It is the same question asked in a great many ways.

"The only thing that can be done, if it is correct, is to find out the cost of the service as now given. If some one is using coal at \$5 per ton, what is the total cost per horsepower hour or kilowatt hour?

"There are so many assumptions to be made that it is impossible to arrive at a cost or comparison that is at all accurate. On the other hand, it involves the efficiency of the boiler, furnace and grate; whether the feed water is hot or cold; whether the load is steady or intermittent, and so on. It certainly involves the engine and the number of pounds of steam required per horsepower hour. That depends on the kind of engine, the inlet pressure, and the exhaust pressure.

"Similar questions must be answered with regard to the motor.

"With regard to curves for comparison, there is no doubt that a set of curves could be made up under a set of given assumptions. The trouble would be that all possible assumptions could not be included; therefore, there would be many cases where they could not be used."

Advice from the Westinghouse Electric and Manufacturing Co. is also received. This company says: "So many varying factors enter into the question of the relative cost of power generated direct and electrically purchased, that any information given with the small amount of data available might be quite misleading. Considering the size of the installation, only 50 horsepower, we would say that as a general rule if they are able to purchase power from any large power station, they can obtain a power rate which will show an actual saving in the cost of power. The use of electricity has other advantages which enter into the overall cost of running the plant, that is with a motor installation, the plant can be started or shut down in a few seconds with no cost of power while shut down unless the central station makes a standby charge. With the motor, there is no labor of firing probably resulting in reduced cost of attendance; there is no cost of coal or ash haulage, very much less lubricating oil is required and the drive is usually much more convenient in a general way. We believe that the interested central station or power company would be glad to investigate the customer's actual condition and endeavor to estimate the relative cost. Without an idea of the actual installation considering the make, type and condition of boilers and engines, operating conditions and the basis of central station charge, we feel that any information we might give might be quite misleading."

✱ ✱ ✱

INCREASES BUSINESS BY \$300,000

A striking improvement is noted in the annual statement of the National Brick Co. of Laprairie, Ltd., Montreal. In respect to earnings it is shown that for the 12 months ending February 28, 1923, there is a net betterment of over \$300,000 over the previous year. Operating profits, after all expenses, including adequate renewals, amounted to \$220,126 as compared with an operating loss of \$67,637 the previous year. From this there has been deducted \$17,653 as provision for income taxes and \$50,000 as reserve for renewals leaving a balance of \$152,473 credited to the year's operations.

The outlook for this year is a considerable increase in production even over last year and substantial profits as a result. The company has four plants and the increased turnover cut down the overhead and net profits are greater in proportion than the increase in production.

"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of the Columbia Brick Works, Portland, Oregon, in regard to their

MARION "RUST SPECIAL" Feeder and Mixer

Read his letter:

"We have been using the Rust Feeder for some time. We find that it gives us a better mixture of clay and a more uniform feed into the crusher, and has proved entirely satisfactory for our requirements."

Write for catalog describing the full line of MARION Clay Plant Equipment. No obligation to buy, but money in your pocket if you do.

Marion Machine Foundry & Supply Co.

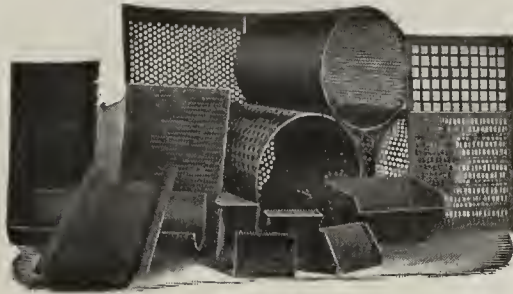
P. O. Box 395

MARION, INDIANA



HENDRICK SCREENS

FOR ALL PURPOSES



ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION

*Ask for your copy of the
Perforated Metal Handbook*

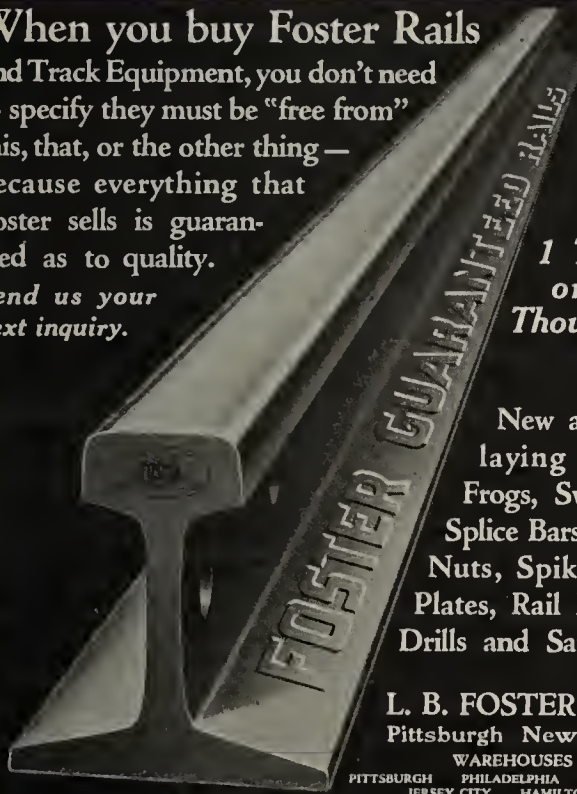
HENDRICK MFG. COMPANY
CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Trust Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.

When you buy Foster Rails

and Track Equipment, you don't need to specify they must be "free from" this, that, or the other thing — because everything that Foster sells is guaranteed as to quality.

Send us your next inquiry.



1 Ton
or a
Thousand

New and Re-laying Rails,
Frogs, Switches,
Splice Bars, Bolts,
Nuts, Spikes, Tie
Plates, Rail Braces,
Drills and Saws.

L. B. FOSTER CO.
Pittsburgh New York

WAREHOUSES
PITTSBURGH PHILADELPHIA NEW YORK
JERSEY CITY HAMILTON, O.

YOUR PHONE, WIRE OR MAIL INQUIRY GIVEN IMMEDIATE ATTENTION



ROBERTSON-PEASE CO.

CENTURY BUILDING

CLEVELAND, OHIO.

ENGINEERS

We offer our services, as your engineers, on the design or construction of:

Tunnel Kilns.

Periodic or Compartment Kilns.

Insulation of Existing or New Kilns.

Fuel Systems.

New Plants and Re-Conditioning of Old Plants.


Special Installations for your particular product.

ENGINEERS

ROBERTSON-PEASE CO.

CENTURY BUILDING

CLEVELAND, OHIO.



TRADE MARK REGISTERED U.S. PAT. OFFICE
JUNE 21st, 1910

VEELOS

Genuine Balata Belting

The Ideal Belt for Brick Plants

Waterproof—Wearresisting
Non-Stretching—Non-Slipping
Durable—Reliable—Economical

Try one VEELOS. QUALITY will tell
You will always use it

The Standard Belt of the World

MANHEIM MANUFACTURING & BELTING CO.
MANHEIM, PA.

IN EVERY
BRANCH
of
CLAY
PRODUCTS
MANUFACTURE
STEVENSON'S
EQUIPMENT
CUTS THE
COSTS

THE STEVENSON CO.
Wellsville, Ohio
Western Sales & Engr. Office
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Dry Pans
Wet Pans
Roll Crushers
Sewer Pipe
Presses
Sewer Pipe
Turners
Tile Presses
Press Feeders
Crusher
Feeders
Pan Feeders
Bucket
Elevators
Gravity
Elevators
Brick Barrows
Tile Barrows
Sewer-Pipe
Barrows
Gigs,
Etc.

STEVENSON

Drawn from the Kilns

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clay Manufacturing

W. F. GEIG GOES TO GREEN

W. F. Geig, of St. Paul, Minn., has accepted a position in the sales department of the A. P. Green Fire Brick Co., at Mexico, Mo., and has entered upon his duties.

WHITE VISITING MICHIGAN

H. F. White, manager of the brick department of the Hocking Valley Products Co., left late in May on a business trip to Detroit, Flint, Lansing and other Michigan points.

YOUNG GOES EAST ON BUSINESS

C. B. Young, president of the Central Refractories Co., Columbus, Ohio, has returned from a business trip which took him to New York, Philadelphia and Pittsburgh. The Pennsylvania plants of the company are making fire brick to a large extent.

E. E. AYARS LEAVES AMERICAN

E. E. Ayars, chairman of the Refractories Division of the American Ceramic Society, and until recently superintendent of the Joliet plant of the American Refractories Co., has severed his connections with that firm as a result of the change in management which was effective about May 1.

NICKELL BUSY PLANNING FAIR

L. U. Nickell, of the Fulton (Mo.) Fire Brick Co., who is active in civic affairs of Fulton and who recently was elected president of the Commercial Club for the second time, has started making plans for the annual home-coming and street fair, that is held each year under the direction of the club.

DEATH TAKES W. C. DENNY

William Christopher Denny, 88 years old, Indianapolis, for many years engaged in the manufacture of brick in his home city, died recently at his residence. He is survived by one grandson. Since 1865 Mr. Denny had lived in the house on Prospect street, in which he died. His wife died about six years ago. He is credited with having provided the brick for several of the older houses in what was formerly the most fashionable district of the city.

KLEYMEYER MADE PORT COMMISSIONER

Henry C. Kleymeyer, Evansville, Ind., prominent brick manufacturer, who has been showing considerable interest in river transportation development, was recently named a Port Commissioner by Mayor Elmendorf, to look after the development of proposed municipal rail and river terminals. Option had been secured on a tract of land upon which to install combination terminals, but carrying out the plan has been held up by a suit filed to contest the constitutionality of the act of the 1923 session of the Indiana Legislature, under which taxes for port development could be levied.

NEW ZEALANDER VISITS U. S.

C. F. Gardner, of Gardner Bros. & Parker, brick manufacturers in Auckland, New Zealand, visited the editorial rooms of Brick and Clay Record on his trip thru America. While in this country he is inspecting numerous clay plants. He also contemplates visiting England. Mr. Gardner's company has recently acquired new clay properties and may enter into the manufacture of fire brick besides increasing their production of common building brick.



No. 300. \$7.80 per doz. \$90 per Gross Pair

A Year of Labor Shortage

Hold on to your men. Jobs are going to be plentiful. Men like to work for concerns who look after their comfort, safety and welfare.

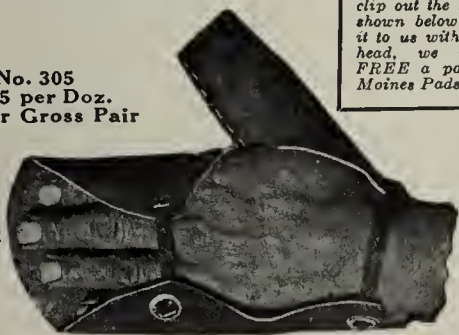
Give your men hand protection. Furnish them with Tuf-Tanned Kant-Rip Mittens or Hand Pads. Send for a trial dozen for either or both kinds. Try out a pair of each, if you are not satisfied return the remaining pairs to us without charge.

**DES MOINES GLOVE
& MANUFACTURING CO.**
DES MOINES, IOWA

FREE

To any manufacturer whose men have not been using Des Moines Hand Pads who will clip out the Hand Pad shown below and mail it to us with his letter-head, we will send FREE a pair of Des Moines Pads.

No. 305
\$4.25 per Doz.
\$48 per Gross Pair



"WITH ONE MAN and one ERIE Shovel, we easily get our 300 cubic yards per day. This is sufficient to take care of the daily output at each of our 3 plants, but we could easily increase this output if necessary. In our opinion, the ERIE is the shovel."—Edw. T. Conley, Sec'y, Bradford Brick and Tile Co., Bradford, Pa. (Owners of 3 ERIES.)

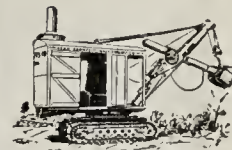
For larger output than the above—500 to 600 cubic yards per day, or more—it is advisable to use two men on the shovel. But when your plant requirements are not too great an ERIE and one man will serve.

We will be glad to send you data showing just what you can do with the ERIE. Write us.

ERIE STEAM SHOVEL CO.

Formerly Ball Engine Co.,
Erie, Pa., U. S. A.

Builders of ERIE Steam Shovels and Locomotive Cranes



ERIE Shovels can be had with broad tired traction wheels, standard gauge car wheels, or on ERIE lubricated caterpillar type mounting. All interchangeable on the same truck frame.

ERIE

Revolving
Shovels



Osgood 3/4 yd. H. D. with Clamshell in Clay Pit

You Can Depend on Osgoods

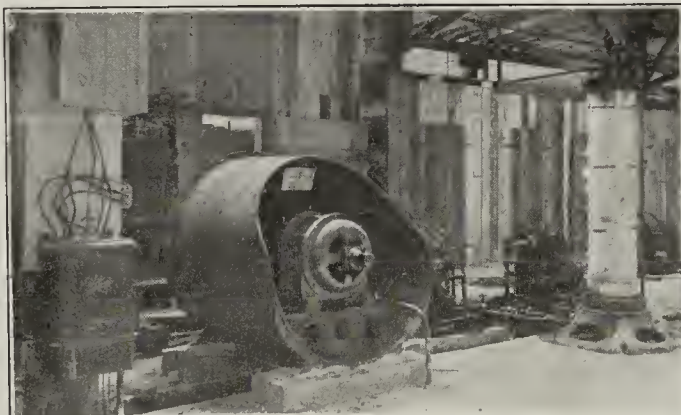
Osgood Steam Shovels—in Design, Construction and Performance are reliable—just the machine to keep up production. Great mobility, easy operation and wide range of adaptation make them worth having.

Descriptive Bulletins on request

1 1/2 TO 6 YD. RAILROAD TYPE
3/4 AND 1 YD. REVOLVING TYPE

The OSGOOD Company
MARION, OHIO, U. S. A.

Oil Fired Kilns



Require a Blower, Oil Pump and Heater as shown above.

When using our combination gas and oil burner, the blower is used for either oil or gas.

*Ask for information regarding
T-J System of Burning Oil.*

Tate Jones & Co. inc.

Furnace Engineers

Established 1898

PITTSBURGH, PA.

New York — Boston — Buffalo — Philadelphia — Chicago — San Francisco — St. Louis

No. 4 Burner



FOERST Fuel Oil Burners Give—

Economy in Fuel—because they develop full efficiency of the oil.

Economy in Labor—because they eliminate back breaking and vitality-sapping work of firing and clinkering with coal.

Economy in Quality of Results—because color of ware is the same top and bottom. No sorting is necessary.

Write for catalog and information

JOHN FOERST & SONS, Bayonne, New Jersey

REPRESENTATIVES
Baumes-McDevitt Machinery Co., St. Louis, Mo. W. G. Edmonds, Clyde, N. Y.
Fuel Oil Engineering Co., Cincinnati, Ohio Elliott & Selby, Philadelphia, Pa.

FOERST

FUEL OIL BURNERS

Always Good~

Now

Better

than

Ever

Another **FEDERAL**
"Means Another Satisfied User"

Building conditions in New Zealand, according to Mr. Gardner, have been consistently good. Unlike this country there was no lull following the war. There is a slight shortage of labor but it is not as serious as in this country. His plant had its output of brick contracted for up till March, 1924, when Mr. Gardner left.

ALABAMA COMPANY FORMED

The Fox Shale Brick Co. has been incorporated at Tuscaloosa, Ala., it is said, with a capital of \$7,500 by James G. Foster, James J. Foster and B. H. Frost.

COURT O.K.'S AMERICAN PLAN POLICY

24 brick and building supply men, and ten building supply firms of San Francisco, on trial for alleged violation of the restraint of trade section of the Cartwright anti-trust law, by refusing to sell materials to contractors who did not operate on the American plan, were acquitted recently after 13½ hours of deliberation.

The defense which won an acquittal for the accused brick and material men, was not a denial of the charges, but the argument that their refusal to sell was a defensive measure and not a criminal conspiracy, which would bring them within the meaning of the law.

BUILDING PLANT AT CALDWELL, IDA.

Arrangements are being made by James Welsh and Charles Grimes to build a new brick plant near Caldwell, Idaho. When ready for operation, it is planned to burn 100,000 brick to begin with part of which are already on order. In due time it is contemplated that the company will manufacture No. 1 common brick, also producing fancy grades. Machinery for installation is being shipped from Boise and Nampa.

PLANS ELECTRIFICATION

U. A. Cote, owner of the Beaverville (Ill.) Brick & Tile Co., is arranging with the Public Service Co. for electric current to drive the equipment. Mr. Cote is going to build two more kilns.

BILLBOARD PUBLICITY FOR PAVING BRICK

Here is one way in which the Purington Paving Brick Co., Galesburg, Ill., gets some admirable publicity. This sign is

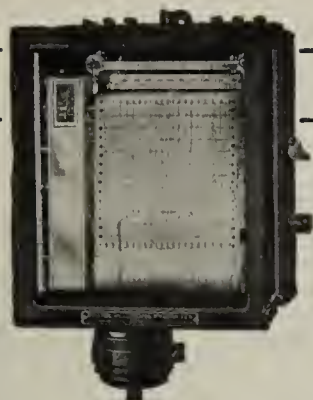


The Colors of This Sign Are So Startling That It Is Impossible to Pass by Without Noticing It.

located next to a brick paved road and fairly thrusts itself upon the vision of the passing motorist. It is 11 feet high and 50 feet long and the letters are painted in a background of brightest red. It is visible for a great distance.

CLAY MINING COMPANY FORMED

Articles of incorporation have been filed with the secretary of state at Indianapolis by the McDonald Block Coal & Clay Co., which has been organized with a capital stock of \$50,000, home offices to be in Terre Haute, Ind. The company will operate strip mines north of Brazil, mining for block coal, potter's clay and shale. It has not been determined whether or not the company will manufacture clay products or dispose of the clay to other concerns. The company will oper-



Heat Controlled *means* Money Saved

KILN temperatures that rise too fast or too slow or do not reach the proper degree mean waste of time, fuel, and labor, as well as a waste of ware.

BRISTOL'S PYROMETERS

enable your fireman to control heat temperatures up to 3000° F. at all times.

They accurately indicate and record, and are absolutely reliable.

Ask for our 68-page catalog AE-1401.

—THE BRISTOL COMPANY—

WATERBURY, CONNECTICUT

BRISTOL'S

INDICATING

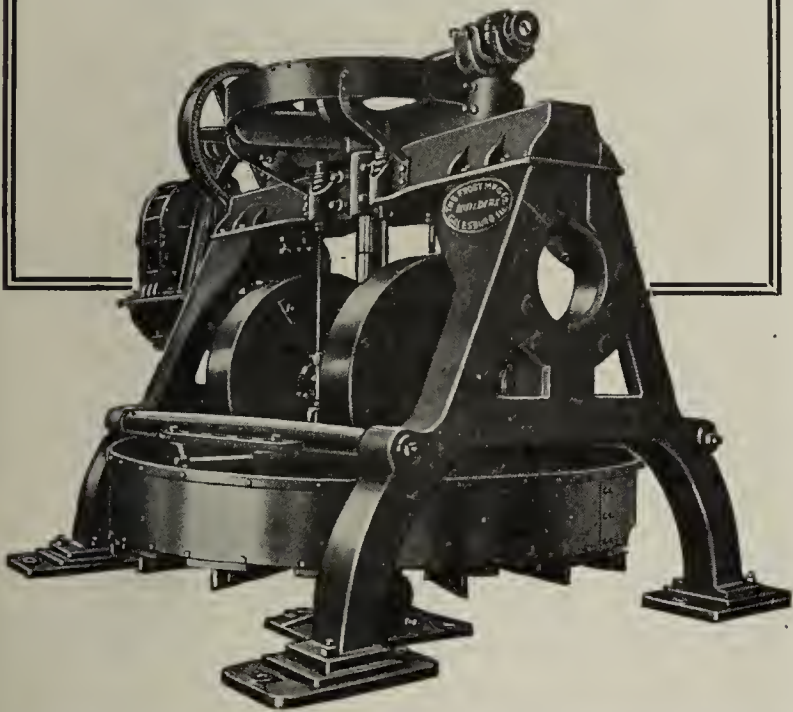
RECORDING

PYROMETERS

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

ATLANTA, GA

BALTIMORE, MD.

BOSTON

DETROIT

PITTSBURGH, PA



SAN FRANCISCO

PHILADELPHIA

MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

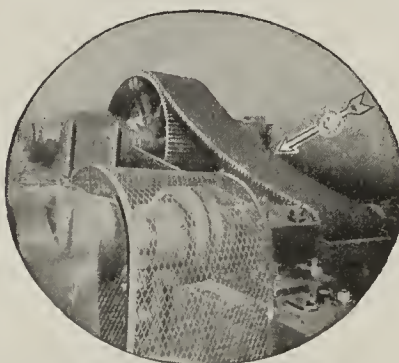
Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

MORSE CHAIN CO.

Largest Manufacturers of Silent Chains in the World

ITHACA, NEW YORK



MONTREAL

MINNEAPOLIS

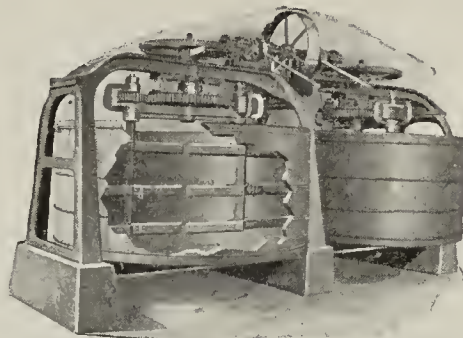
NEW YORK CITY

ST LOUIS, MO

TORONTO

WINNIPEG, MAN

CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO



Five Tons of Material Blunged in Less Than One Hour—

This is the guaranteed performance
of this remarkable machine—

THE MUELLER BLUNGER

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take full advantage of the immense possibilities for increasing production and reducing costs which result from the adoption of the Electric drive. Our generators and motors have an excellent reputation for successful operation under the most severe conditions encountered in the Brick and Clay Industries.

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ate on land about six miles north of Brazil in Clay County, where 500 acres are owned by the corporation. Directors of the new corporation are Henry F. McDonald, Jess W. McDonald, J. C. Coleman, Theodore S. Biggs, Harley McDonald, Fred Hermeling and Harold H. McDonald.

WILL BUILD COMMON BRICK PLANT

Dr. Milton S. Smith, 810 Michigan Avenue, La Porte, Ind., will build a plant to produce common brick. Dr. Smith is formulating his plans at present and hopes to start actual work in the near future. He will be glad to have equipment manufacturers communicate with him.

CUT IOWA RAIL RATES

The Ohio state railroad commission has announced a reduction of freight rates in Iowa on brick, tile and other clay products to become effective June 20. The reductions vary from one-half cent to one cent per hundred pounds on shipments up to 125 miles, the schedule to apply on shipments of 50,000 pounds or more, of most of the clay products and 40,000 pounds on building tile. The minimum shipments of drainage tile to benefit by the reduction will be 30,000 pounds.

Freight rates on these products at the time this country entered the war averaged about 2.8 cents per hundred. War-time changes increased the tariff to about seven cents and it has since been reduced to an average of six cents.

GREEN BUYS CLAY PROPERTIES

From a recent report it has been learned that the A. P. Green Fire Brick Co., of Mexico, Mo., has purchased the clay properties of a company located in Linn, Mo. The plans of the A. P. Green Co. are to use these extensive properties in the manufacture of high class furnace brick.

WAGES RAISED AT THREE PLANTS

An advance of wages at the face brick plants in the Straitsville, Ohio, region of the Hocking Valley was made effective April 1, when all the men were put on an eight-hour day with the former pay for nine hours' work. This is an advance of about 12 per cent. in the wages paid. The plants affected were those of the Claycraft Brick Co., the Ironclay Brick Co., and the Straitsville Impervious Brick Co.

IRONCLAY AGAIN OPERATING

The plant of the Ironclay Brick Co., of Columbus, located at Shawnee, Ohio, is now under full operation following a short shut-down due to breaking of important machinery. Plants of the Claycraft Brick Co. and the Central Refractories Co., also in the Hocking Valley, are operating with a full force of workmen.

COMMON BRICK PRICES HIGHER

Common brick demand in Columbus and central Ohio is strong with prices slightly on the advance. Common brick delivered on the job are selling at \$17.50 and \$18.50. All local plants are going at full blast and a considerable quantity of common brick is being shipped in to take care of the demand.

STRIKERS RETURN TO WORK

Operations have been resumed at the East Ohio Sewer Pipe works and the Banfield Clay Plant at Irondale, Ohio, with several hundred employes of the concerns going back to their jobs at the old scale. Officials of these industries this week announced that the majority of the men who have been on strike have resumed work. Others are expected to return to their jobs next week. The men, who have been getting 45 cents an hour, walked out three weeks ago, seeking an increase to 60 cents an hour.

"101 IDEAS

for Improving the

CLAY PLANT"

is the title of the **newest** and **latest** book compiled by the editors of "Brick and Clay Record" and published by Industrial Publications, Inc.

The book contains exactly what its title indicates—101 **real ideas fully illustrated**. It presents no theories of cost reducing or untried ideas which might seem good, but every one of the ideas presented has been tried out in actual service in the clay plant.

This book adds permanently to the library of the clay products manufacturer a wealth of ideas which he can use to improve his methods. Only a limited number of copies has been printed. Get yours **NOW**. Price \$1.50, postpaid.

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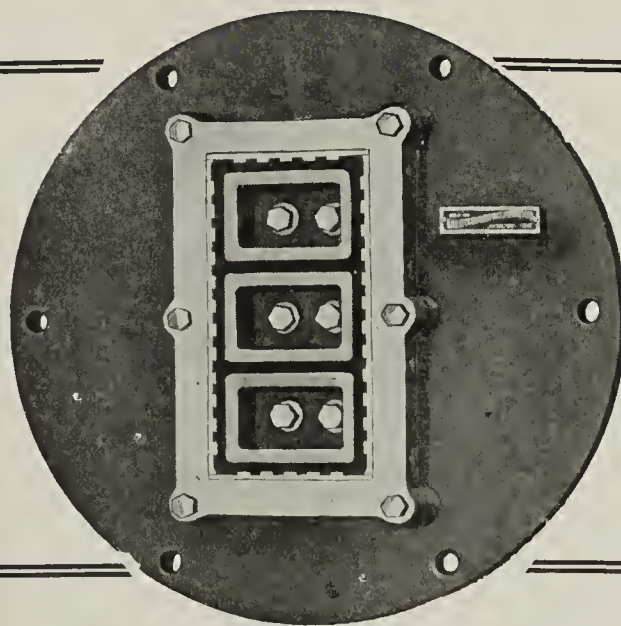
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get in touch with us. We have had many years' experience manufacturing clay working dies of all descriptions. Every die that leaves our shop we aim to fit the characteristics of that machine.

Whatever die you need, mail us a rough sketch and let us figure on it.

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Louisville, Ohio



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We Make 'em"*

**“We would not
be without them”**

Says Mr. Chas. W. Parker, manager of the Walsh Fire Clay Products Company, St. Louis, Mo., in regard to their complete installation of Wilson-Maeulen Pyrometer Equipment.

* * * * *

“We have 52 kilns, divided into three units. Each unit is equipped with the Wilson-Maeulen pyrometers complete with all the necessary parts, including a Tapalog and a multi-recording indicator for each unit, said instruments being located in the Pyrometer rooms.

“The burners and superintendents consult these instruments regularly day and night, and it very materially helps in handling the problem of burning. And, too, the Tapalog gives us a record of performance which may be consulted afterwards should occasion arise.

“WE WOULD NOT BE WITHOUT THEM, and consider that they are as much use in the plant as a steam gauge is on the boilers. Our superintendents have learned to rely on them, and it is the general consensus of opinion that they have filled a long-felt want.”

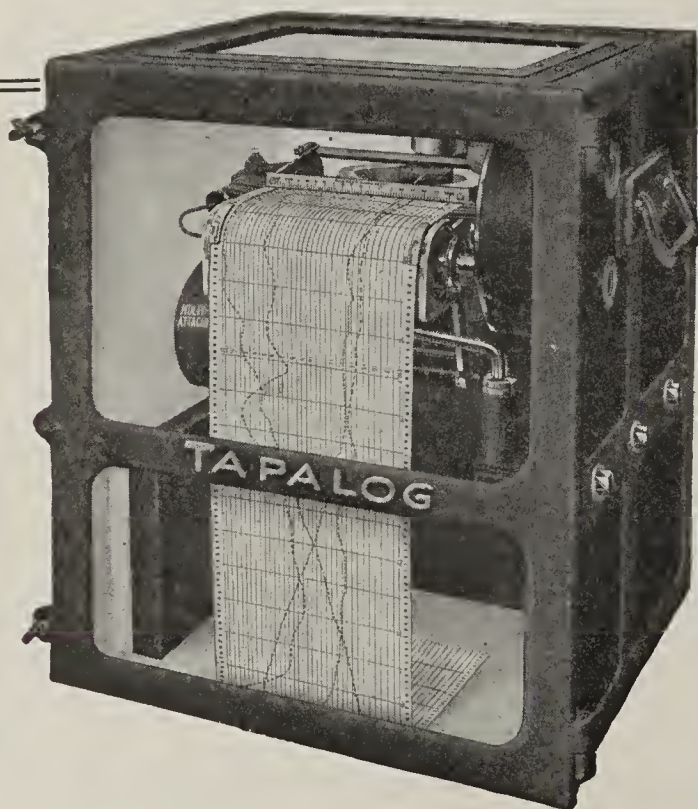
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Wilson-Maeulen Pyrometers afford the truest combination of accuracy—durability—and convenience in burning ware.



Write our Engineering Dept. for advice and estimates. No obligation.

WILSON-MAEULEN COMPANY
738 E. 143rd St. New York



Face brick trade is steady and prices are unchanged from those prevailing earlier in the spring. Face brick plants as a rule are running to capacity and are not accumulating any stocks. In fact, accumulated stocks during the early spring are being depleted rapidly.

TO REOPEN WILLAMINA PLANT

The Kern Clay Products Company, Portland, Ore., has taken over the brick plant of the Pacific Brick Co. at Willamina and will reopen it. The plant has been idle for over a year. It will soon have a capacity of 40,000 brick a day.

McEWEN PLANT STARTS

After a few weeks shutdown when extensive repairs were made to the equipment of the plant, the Highland Brick Co., McEwen, Tenn., has again resumed operations. The company has enough orders on hand to keep them running for several months. Labor is scarce and it will be difficult to keep enough men when the plant is running to full capacity.

TO BUILD NEW CLAY PLANT

Rutland, Vt., will in due time have a new fire clay plant, it is announced. The Rutland Fire Clay Co. has begun working on plans for a new \$50,000 factory. The building will be 50x120 feet, constructed of cement and steel, three stories in height. The completion of the new structure will enable the company to double its present capacity. About 20 products are made at the plant which employs about 100 persons.

PUTS IN AUTOMATIC BRICK MACHINE

The Drury Brick & Tile Co., at Essex Junction, Vt., has installed an automatic brick machine with a capacity of 60,000 brick per day. It was installed in the new two-story, fire-proof building erected for the purpose, and is being operated by electric power. A gasoline engine operates cars loaded with clay over a narrow gage railway pulling them to the hopper where they are automatically dumped. The company plans to double its last year's output of 7,000,000 brick this season.

INSTALLS NEW BRICK MACHINE

The Atlantic Brick Co., Norfolk, Va., reports business at this time to be fair. The company has recently installed a new Steele brick machine of larger capacity.

VIRGINIA COMPANY INCORPORATED

The Richmond Clay Products Co. has been incorporated at Richmond, Va., with a capital of \$65,000 and with Brockem Lamm as president and R. W. Carrington as secretary, a report states.

INCORPORATES FOR \$100,000

The Big Stone Gap (Va.) Brick & Tile Co. has been incorporated with a capital stock of \$100,000 and with the election of W. W. Taylor as president and I. C. Taylor as secretary. The company will manufacture clay products.

SPENDING \$30,000 ON NEW PLANT

The American Brick Corporation of Suffolk, Va., of which R. L. Jacobs is president and Lewis G. Brothers, secretary, has awarded the contract for the erection of a plant with a daily output of about 30,000 brick. The cost of the building and machinery will be about \$30,000.

NEW COMPANY IN VIRGINIA

Charter with a maximum capital stock of \$200,000 and a minimum of \$10,000 has been granted to the Hudson Brick & Supply Co., Alexandria, Va. They will manufacture and deal

ATLAS

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QUARRYMEN in every section of the country are adopting Atlas Ammite as their all-year-round explosive. Their attention was first attracted to this Atlas product as a winter explosive—Ammite cannot freeze. But its remarkable efficiency recommended Ammite for more than cold weather work. It often does the work better and at lower cost than ordinary explosives and it will not cause headaches when handled in large quantities. Let the Atlas Service Man show you how Ammite may be made to save money on your work.

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A well-known Kansas City manufacturer (name on request) states:

"We were so favorably impressed with the first Green Duck Belt that we have purchased another."

Green Duck Belts stay soft and pliable, and do not get sleek or slip on the pulleys as we have observed in other canvas belts.

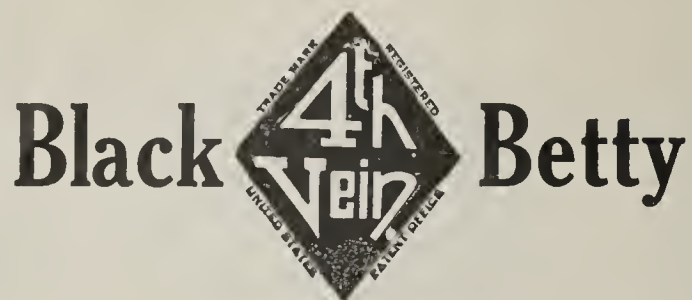
If you have a belting problem—driving or conveying—Green Duck will solve it.

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The very coal you need to solve your steam and clay burning problems.

Zimmerman Coal Company

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Terre Haute,

Indiana

in brick and building supplies. Officers and incorporators are: Henry W. Heine, president; Edwin K. Fovre, secretary; and Paul Rogers, all of Washington.

AMERICAN FIRE BRICK TO START

The plant of the American Fire Brick Co., at Sixteenth Avenue and Chestnut Street, Spokane, Wash., which remained idle last year, is now being repaired and will be put in operation as soon as possible.

INSTALLS NEW MACHINERY

C. P. Oudin, president and general manager of the American Fire Brick Co., announces the installation of new machinery and sidings at the plant in Spokane, Wash. With 40 men the plant will resume the manufacture of face brick and hollow tile. At their plant at Mica, the company employs 75 men in the manufacture of fire brick, face brick, hollow building tile, and sewer pipe.

GASTON IMPROVES WATERTOWN PLANT

Watertown (Wis.) has a brick and tile manufacturing plant that in the last year has been changed from an old fashioned brick yard into a modern brick factory. All this has been accomplished thru the untiring efforts of Omar Gaston, president and general manager of the Watertown Brick & Tile Co. It is a healthy going company modestly capitalized at \$50,000, there being \$45,000 of common and \$5,000 preferred stock.

Until the opening of the last season the capacity of the plant was about 3,000,000 brick per year. With the new and modern brick machines, capable of turning out 6,000 brick per hour, and an improved dryer the plant now has a capacity of close to 15,000,000 brick per year, and at a considerable less cost per thousand than heretofore.

NEW BURNHAM PLANT

The largest brick plant in Wisconsin, covering a tract of 46 acres, built to manufacture 250,000 brick a day, has recently been opened. The site is eight miles from Milwaukee, just north of Carrollville. It is being built by the Burnham Brothers' Brick Co.

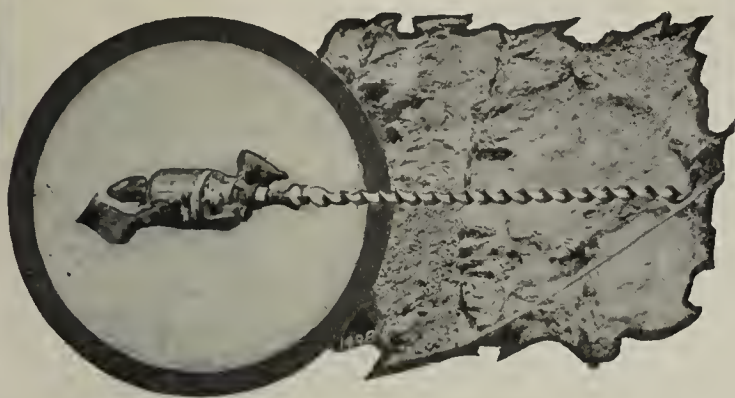
The full equipment and grounds will cost more than \$300,000. The annual output of the yard will exceed 35,000,000 building brick. According to George E. Burnham, president, the land will provide enough clay for the next fifty years.

A number of buildings have been erected with all modern improvements to speed production. One of the features of the new plant will be a 20 tunnel dryer. The kiln shed is 800 feet. The company also has erected machine shops and power plant.

"There has not been enough brick manufactured to supply the demand in Milwaukee," said Mr. Burnham. "Our object in opening this new plant will be to supply at all times a proper amount to meet the demand. We believe with our new yard we will be able to take care of the great demand now made by the city, caused by the great building boom which has swept the country."

ATLAS MODERNIZING PLANT

The Atlas Brick Co., Ltd., Milton, is spending \$100,000 on alterations to its plant and is installing improved equipment. The plant was formerly the Boyd Pressed Brick Co. of Milton, Ltd., and is now under the management of F. B. McFarren, who is also manager of the Interprovincial Brick Co. of Toronto. The old plant has been entirely rebuilt and the new additions will completely modernize it. It is expected that the capacity of the plant will be doubled and that high-grade rough texture brick will be made by spring. In the meantime 20,000 red pressed brick are being produced per day.



Electrically!

WHEREVER there's a current outlet, either D. C. or single, two or three-phase A. C., Little Giant Electric Coal Drills are widely used for shot-hole drilling and repair work.

For example, the A. P. Green Fire Brick Company, Mexico, Mo., using the Little Giant Electric Coal Drill illustrated, drilled fourteen four-foot shot holes through plastic, semi-plastic and flint clay while a hand auger drilled one such hole.

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R-29

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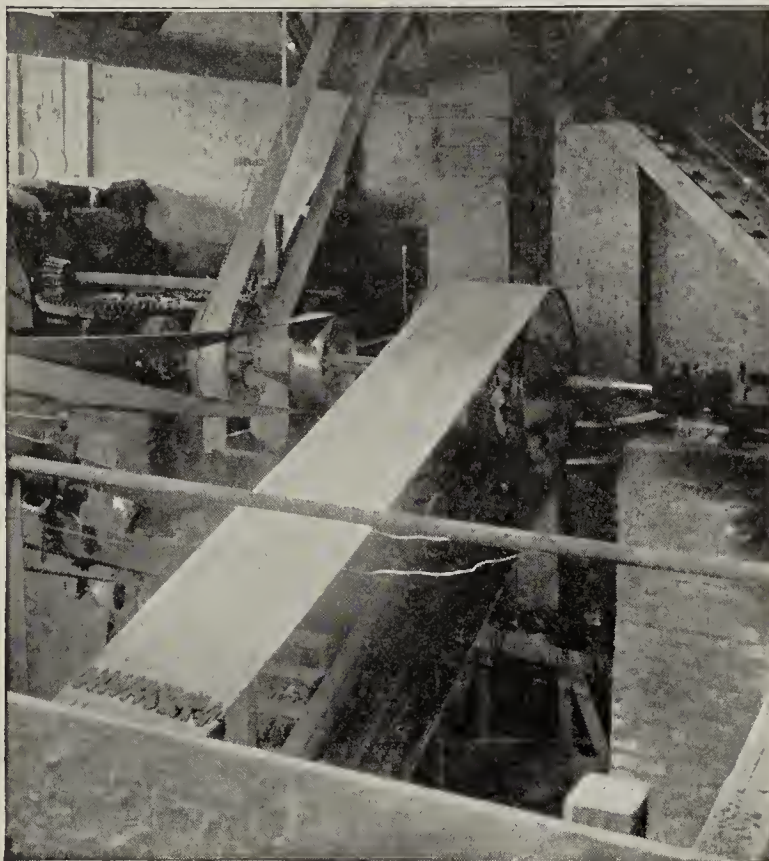
LITTLE
Coal



GIANT
Drills



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On all the hard drives for which the brick and clay industry is noted—the main drive, the crushers and grinding pans, pug mills and brick machines, represses and auxiliaries—and in all conveying and elevator duty, Goodyear Belts have an earned reputation for powerful, trouble-free service and long, economical life.

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Goodyear Belts and other mechanical goods for the brick and clay industry are scientifically specified to their work under your conditions of service by the G. T. M.—Goodyear Technical Man.

For performance records or any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

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GOODYEAR
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"HURRICANE" DRYERS



TUNNEL DRYER FOR INSULATORS

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Every progressive manufacturer is looking for machinery to improve his plant and that is the duty of "Hurricane" Dryers.

Great savings in labor, steam and operating power and increased production, are things we can prove to you if given the opportunity.

Our experience covers a period of over 25 years and our Engineers are prepared to issue special plans where standard equipment will not do.

Catalogs on request.

Automatic Mangles
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DRYING MACHINERY COMPANY**
3351 Stokley St. Philadelphia, Pa.

Western Agency: 1814 CONTINENTAL BANK BUILDING, CHICAGO

MAGNESITE PRODUCTION INCREASES

The production of crude magnesite in the United States in 1922 was 32 per cent. greater than that in 1921. It amounted to 63,487 short tons, valued at \$650,742, according to figures compiled by James M. Hill, of the United States Geological Survey. Practically all the magnesite mined in 1922 was obtained from deposits in California, tho a little was mined in Washington during the latter part of the year, and some calcined magnesite was shipped from stock piles at Valley, Wash. The largest producer of magnesite in California was the Western Magnesite Co., which operates the Red Mountain mine, south of Livermore, in Santa Clara County; the second largest producer was the Sierra Magnesite Co., whose mines and mill are near Porterville, Tulare County. The magnesite mines near Rutherford, Napa County, operated by C. S. Maltby, ranked third; and a small output was made from mines near Piedra, Fresno County; Sampson, San Benito County; Morgan Hill, Santa Clara County; Gustine, Stanislaus County; and Exeter, Tulare County.

Figures showing the imports of magnesite since the tariff act of 1922 went into effect (September 22, 1922) have not yet been published. The imports during the part of the year prior to that date amounted to 112,159 tons, valued at \$1,757,636, as compared with 42,486 tons, valued at \$592,491, in the whole of 1921.

No crude or calcined magnesite was exported in 1922. The exports of magnesite pipe and boiler coverings and other manufactures during the year amounted to 3,831,681 pounds, valued at \$223,686.

More than 90 per cent. of the magnesite produced in 1922 was sold in the calcined form and brought from \$30 to \$50 a ton. A small quantity sold crude for chemical uses was priced at \$10.50 to \$12.50 a ton. The prices quoted on domestic magnesite were about \$10 a ton thruout the year.

The assurance of good prices upon the passage of the new tariff act greatly stimulated the domestic industry. Many deposits in California are being reopened, and additional equipment is being installed at calcining plants. There is also renewed activity in the Stevens County field, Wash. All magnesite operators are optimistic as to the future of the industry.

SLAG BRICK COMPANY FORMED

Charles T. Bray, Salt Lake City, Utah, has recently secured a patent on his new invention from the government, it is said. This new machine will be used in making brick out of slag. Mr. Bray is busily engaged in selling \$100,000 worth of stock in his company, the concern being incorporated for \$300,000.

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

New Bay City Catalog

A very complete attractive 40-page booklet, known as "Catalog E," has reached our desk from Bay City, Michigan, Dredge Works. The first 29 pages are devoted to the One-Man Excavator, a machine which is finding much favor among those operators who require a small, inexpensive power shovel or crane. The next six pages, which will be of interest to road and general contractors, deal with the Model 16 Convertible Crane Excavator with its six different attachments, special attention being paid to the Skimmer Scoop. Brief mention is also made of Bay City Land Dredges and their various types of mounting.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

A Ticklish Situation in Building

A MONTH AGO when it became apparent that the most gigantic building boom which had ever struck this country was on the wane, we welcomed the retrenchment as a good omen. However, since then certain forces in the construction industry, apparently with an ax to grind, have sought to further restrict building operations. Drastic measures to cause almost complete tie-up of construction have been urged in some quarters.

Whenever one cautions against economic trend, a delicate situation arises. The situation has now reached that stage where a move in the wrong direction may plunge this country into a serious business reaction. This is not a time to stop all building.

Persons experimenting with the laws of supply and demand will find them live wires and may become shocked severely. It is generally accepted that the era of good business that has existed and is existing, was built upon a foundation of great construction activity. Destroy that foundation and everything above it will topple with it.

Business is based upon confidence. Every manufacturer will do well to help instill confidence in his sphere of operations. A "bear" raid on business—on building construction at this time is altogether out of order.

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Importance of Knowing Correct Statistics

ONE OF THE BEST TOOLS of "bear" raids on business is to point to the pyramiding of orders on the part of the buyer. Business is dependent upon price and service. If a buyer does not believe he can depend upon delivery from his seller, he places duplicate orders and later cancels the orders which develop slowest in delivery. The placing of duplicate orders in this manner (and frequently it does not stop at duplication but continues to triplication, and so forth) creates artificial business which is unsound.

Particularly is business unsound when the orders exceed actual demand. Manufacturers will do well to avoid being misled. Over-production usually results from cases of this kind.

Thus, when cancellations begin to come, a panic in prices invariably results.

It is better to gage business by actual fundamental requirements than by apparent inquiries. Go to the source for information. If it is face, common brick or hollow tile you are manufacturing, watch the architect's boards instead of the contractor's inquiries. If it is refractories, watch pig iron and coal production and general industrial activity.

There never was a greater need for knowing statistics on demand and production than right now. There never was a greater need to keep both feet on the ground by watching these statistics than right now.

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Better Refractories Wanted?

C. E. NESBITT and M. L. Bell, research engineers of Carnegie Steel Co., have frequently contributed valuable findings with respect to refractories. At the recent meeting of the American Iron & Steel Institute, they contributed a paper entitled "The Disintegration of Fire Brick Linings in Blast Furnaces" in which they reported some interesting results obtained after comprehensive research. According to the report of their investigations, there is considerable disagreement as to the best mode of manufacturing fire brick for blast furnace linings.

Refractories manufacturers have shown sincere desire to improve their production thru research work carried on at the Fellowship established by them at Mellon Institute and thru co-operative investigations with consumers. They are earnest in their efforts to manufacture the highest grade of product possible from the raw materials at their command.

It is to be regretted, however, that the purchasing department of a consumer of refractories is not always in accord with the research department. A manufacturer of refractories who is striving to produce a high quality product which of course requires greater care, and hence increases cost, is handicapped in the selling price of his product when compared to his less conscientious competitors. And not every consumer is willing to encourage

the manufacturer of higher grade ware by paying a better price for it.

The recommendations made by Messrs. Nesbitt and Bell that fire clays be purified so as to contain no objectionable iron compounds if carried out, would undoubtedly make a better refractory product but it would increase cost of manufacture. Perhaps the additional cost would be worth while from the standpoint of the service the product would give. But would the purchasing departments of the consumer companies continue to be guided by price or quality in their purchases?

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Assuring a Supply of Bricklayers

IT IS with much satisfaction that we announce in this issue that a movement is now on foot which has for its object the training of young men for the bricklayer trade. It is especially pleasing to know that this movement originated with clay products manufacturers and that they are the ones who have seen the urgent necessity for increasing the number of men in the bricklayer trade. To the Common Brick Manufacturers Association belongs the credit for having launched the campaign.

That it was of the biggest importance that something be done to relieve the situation was recognized by every branch of the industry relating to building. During the last decade the number of bricklayer apprentices has dwindled to a negligible amount and the number of journeymen bricklayers has decreased to an alarming extent.

It will not be many years from now when clay products will be used in increasing quantities and it is then that we must have enough bricklayers to take care of the needs of the building industry.

So it was of the highest importance that something be done now to meet this situation of the future. Something was done at a conference called in Cleveland at which were present representatives from all kinds of organizations identified with the building industry and this something was a plan to establish bricklayer apprentice schools thruout the nation.

Backs Permanent Bricklayers Schools

Common Brick Manufacturers Association Prime Mover in Plan to Establish Permanent Bricklayer Apprentice Schools—All Branches of Building Industry Meet Jointly at Important Conference in Cleveland—Evolve Constructive Measures

THE BIGGEST STEP forward toward making this country a nation of brick construction was taken at Cleveland, Ohio, when some 40 representatives of about 25 building industry organizations from all sections of the country pledged the support of their associations and their membership to a comprehensive movement for the establishment of apprentice schools for bricklayers, at a conference called for this purpose.

The movement found its inception with the executive operating staff of the Common Brick Manufacturers' Association of America, and was sponsored by Ralph P. Stoddard, secretary; Charles A. Bowen, assistant to the president, and William Carver, architect of the organization.

Importance of the Conference

Many features stood out during the all day session of the conference, each of which showed the tremendous importance with which more brick construction and more bricklayers are considered by, not alone the building industry itself, but federal, educational and labor institutions in every part of the country.

Foremost among the developments may be considered the adoption of a resolution looking to the enactment of a comprehensive working program for bricklayers' schools; enthusiastic support of the labor unions for such a move; the compilation of a text book, by the Common Brick Manufacturers' Association of America. It was decided to engage a man who would act in the capacity of National Director of Bricklayer Apprentice Schools. His duties will be to travel over the entire country and not only establish schools, but present the working machinery for these schools and see that they become successful.

Elements represented at the conference included contractors, employers, labor, public schools, trade schools, the federal government, architects and material interests.

Robert's Resolution

The sense of the resolution, submitted by E. A. Roberts, Cleveland Builders' Exchange, and backed by Edward L. Wertheim, director of the West Side Y. M. C. A. School, New York City, and supported by the entire conference, was:

"That the sentiment of this meeting be correlated in a report, to be approved by a committee to be appointed by the chairman, representing as far as possible the various elements congregated here, and when so prepared that it be promulgated for the purpose of promoting the objects for which this meeting was called originally."

Mr. Stoddard, chairman of the conference, indicated that as soon as the report is prepared the committee will be named, and it is likely that this committee will comprise a representative from each of the interests that attended the conference. Following the approval of all who took part in the conference immediate steps will be taken to evolve a working program for the establishment of the bricklayers' apprentice schools.

Cleveland Bricklayers' School

One reason why the conference was held in Cleveland was to give the members attending first hand information on the development and progress of the Cleveland Bricklayers' School in that city. Experts who have seen its operation have declared it to be the model for others to pattern after.

This school, as has been told previously in Brick and Clay Record, is operated jointly by the Cleveland Board of Education, the Building Trades Employers' Association, and Bricklayers' Union Local No. 5. Its work is supervised by Howard L. Briggs, vocational training director of the Board of Education, and instruction is given by an expert bricklayer, Robert L. Hart. Both told what the apprentice school in Cleveland is doing to create more bricklayers. Their practical instruction talk was amplified by George Dautel, president of the Mason Contractors' Association of Cleveland, and chairman of the Bricklayers' Apprentice Committee, who spoke from the contractors' viewpoint, on the beneficial results obtained from it.

To a degree the conference revolved around the question of how many bricklayers are really needed. Caution was manifested on several sides against an oversupply of new workers, yet the sense of the meeting appeared to show that there cannot be too many taking the instruction thruout the country, tho in some sections a surplus of men, and in other sections a lack of sufficient numbers, might be encountered.

Why More Bricklayers Are Necessary

This feature was emphasized by William Carver, architect, the Common Brick Manufacturers' Association. Mr. Carver



THOMAS R. PREECE.

asserted that many more bricklayers can be created and that the need for them will continue to grow, since brick construction must necessarily take the place of lumber, with lumber decreasing in supply each year. As a consequence of this, Mr. Carver said, permanent construction must necessarily follow, and men to create it must be had.

The cooperation of the labor interests, which was favored



Learning the Art of Bricklaying at a School in Minneapolis. The General Establishing of Such Schools Will Relieve the Bricklayer Shortage

by Thomas L. Preece, vice-president of the Bricklayers', Masons' and Plasterers' International Union of America, Indianapolis, likewise is considered a signal accomplishment coming out of the conference. Mr. Preece asserted he looks with favor on the project, providing it can be handled in the right way. Approval of the arbitration committees would also make for willingness on the part of labor to further the system, he said. This position of the bricklayers' union is especially encouraging in view of the fact that opinion in the construction industry generally has been that the unions were opposed to any material increase in the number of bricklayers. Mr. Preece, however, is convinced that the growing demand for brick, to be satisfied, must mean more bricklayers.

In reviewing labor's attitude on the plan Mr. Preece expressed the belief that the apprentice situation is a permanent one, and that as such it may well be made a national project. In fact, in his opinion, the project may be developed, not only for the creation of more bricklayers, but of more skilled operatives in other crafts in the building industry.

Every One Supported the Movement

An important angle in connection with the functioning of the proposed committee was brought out by D. Knickerbacker Boyd, nationally known architect and in this capacity representing the Philadelphia Building Congress. Mr. Boyd offered the suggestion that the committee should consider the economics of the clay products industry in its relation to the bricklaying craft itself, such as the number of brick that an individual can lay, their sizes, location and other factors entering into the actual handling of the material in the construction work.

Support to the movement for bricklayer apprentice schools was offered from all sides. Abram Garfield, Cleveland architect, said that the Cleveland Chapter, American Institute of Architects, has offered to get behind the project and do all it can. G. W. McGarvey, director in the Cleveland district of the federal Smith-Hughes law, and special agent of the federal board for vocational education, explained the scope of the law, which, primarily is for the aid of financing such movements as this, offered its support to the national program, and told how it is being applied in the Cleveland apprentice school.

What Y. M. C. A. Is Doing

Lewis Gustafson, of the David Ranken Junior School for Mechanical Trades, St. Louis, told of the successful operation of an apprentice school in that city. V. L. Lloyd, as representative of the National Association of General Contractors, voiced the sentiment of the employing element by stating that contractors in more than 50 cities have expressed willingness to support the plan with money, with time and by taking on the apprentices that these schools will turn out.

What the Y. M. C. A. schools are doing along this line

was told by Fred C. Smith, national director of technical schools of his organization, and Edward L. Wertheim, director of the West Side school in New York. These schools, they showed, would be valuable links in the chain of apprentice education in the national program. It was their offer of support that brought forth the statement from Mr. Preece that organized labor would favor any school, as long as its operation and results were approved by the local arbitration committees. Literature showing in picture and story what the Y. M. C. A. schools are doing to create bricklayers, plasterers and tile setters was distributed by the representatives from that institution.

How Many Bricklayers Are Needed?

One big question that has yet to be answered is: How many bricklayers really are needed? This was brought out by Mr. Dautel. He cited the position of the Cleveland contractors, with 250 employers taking only 2 apprentices each, bringing the total up to 500. Mr. Dautel expressed the belief that while this number might seem too large right now, the needs of the future must be considered, yet at the same time not more should be employed than are needed to finish their four full years.

How well thought of the work at the Cleveland school is, is shown by the invitation received by the school committee from Babson's Conference, to be held at Wellesley Hills, Mass., the latter part of July. Mr. Dautel, chairman, and Mr. Hart, instructor, have been appointed to give talks before this conference. This school teaches the boys to become real brick masons, instructions including such things as plan reading and some of the more difficult bricklaying work.

The compilation of a text book on the subject of bricklaying will go right ahead, according to Director Briggs of the Cleveland school. The Cleveland apprentice system will be taken as a model. The book will include planning, operations and study courses in all branches of training. This work will be done for the Common Brick Manufacturers Association, and its use will be announced later. A stenographic report of the meeting has been made and will be available soon.

These Organizations Were Represented

Akron Public Schools, R. H. Waterhouse, Akron, Ohio.
American Face Brick Association, R. D. T. Hollowell, Secretary, Chicago, Ill.
American Institute of Architects, Abram Garfield, Cleveland, Ohio.
Associated Building Employers of Michigan, F. L. Dykema, Grand Rapids, Mich.
Associated Building Industries of Cincinnati, Chas. F. Waltz, Cincinnati, Ohio.
Mason Contractors Association of Cleveland, Otto Best, bricklayer apprentice commissioner, Cleveland, Ohio.
Bricklayers, Masons and Plasterers, International Union of America, Thos. R. Preece, Vice-President, Indianapolis, Ind.
Bricklayers, Masons and Plasterers, International Union—Ohio State Conference, John W. Jockel, Secretary, Cleveland, Ohio.
Bricklayer Union No. 5, Cleveland, Ohio, L. E. Hoffman, Secretary, Cleveland, Ohio.
Bricklayer Union No. 5, Cleveland, Ohio, Luke O'Donnell, Business Agent, Cleveland, Ohio.
Bricklayer Union No. 5, Cleveland, Ohio, Maurice Foley, E. Cleveland, Ohio.

Cleveland Builders Exchange, Earl D. Flood, Cleveland, Ohio.
 Cleveland Builders Exchange, E. A. Roberts, Cleveland, Ohio.
 Building Trades Employers Association of Boston, John F. Walsh, Boston, Mass.
 Carnegie Institute of Technology, Alfred J. Hartman, Assistant to the President, Pittsburgh, Pa.
 Citizens Committee to Enforce the Landis Award, C. L. Bailey, Chicago, Ill.
 Cleveland Apprentice School, Robert A. Hart, Instructor, E. Cleveland, Ohio.
 Cleveland Bricklayer Apprenticeship Committee, George Dautel, Cleveland, Ohio.
 Cleveland Building Trades Employers' Association, Wm. P. Carroll, Secretary, Cleveland, Ohio.
 Cleveland Public Schools, Howard L. Briggs, Vocational Director, Cleveland, Ohio.
 Cleveland School of Technology, P. F. Ellsworth, Cleveland, Ohio.
 Common Brick Manufacturers' Association of America, Ralph P. Stoddard, Secretary; William Carver, Architect; Chas. Bowen, Asst. to President, Cleveland, Ohio.
 David Ranken, Jr., School of Mechanical Trades, Lewis Gustafson, Secretary, St. Louis, Mo.
 G. W. McGarvey, Washington, D. C.
 General Contractors Association, Thos. F. Bolton, Cleveland, Ohio.
 Hollow Bldg. Tile Association, J. S. Sleeper, Chicago, Ill.
 Industrial Publications, H. H. Rosenberg, President, Chicago, Ill.
 National Association of Builders Exchanges, Edward Dodd, Cleveland, Ohio.
 National Association of General Contractors, V. L. Lloyd, Cleveland, Ohio.
 New York State Association of Builders, Harry C. Taylor, Secretary, Rochester, N. Y.
 Ohio State Association of Builders Exchanges, Philip P. Gott, Secretary, Akron, Ohio.
 Philadelphia Building Congress, D. Knickerbacker Boyd, Philadelphia, Pa.
 Teachers College, Columbia University—Institute of Educational Research, E. L. Bowman, New York City.
 Y. M. C. A. Technical Schools, Fred C. Smith, Director, New York City.
 West Side Y. M. C. A., Edward L. Wertheim, New York City.
 Youngstown Builders Exchange, Ira E. Sprankle, Youngstown, Ohio.
 Youngstown Builders Exchange, August D. Fichler, Youngstown, Ohio.
 Youngstown Master Plumbers, W. S. Hogg, Youngstown, Ohio.

NEW RECORD IN IRON PRODUCTION

With no pronounced development in the steel market, interest centers in the remarkable performance of the country's blast furnaces in May. Another high record was made, with an output of 3,867,694 gross tons or 124,764 a day, as against 3,549,736 tons in April, which established the previous record of 118,324 tons a day, says Iron Age. It continues:

"The gain last month was almost entirely in the pig iron output of steel companies. Of the total increase of 6,440 tons a day, they contributed 5,884 tons and the merchant furnaces only 556 tons.

"14 blast furnaces went in in May and three blew out. The capacity of the 321 furnaces active June 1 is estimated at 125,100 tons a day, against 119,500 tons a day for the 310 furnaces in blast on May 1.

"Thus, as the month opened, the country was producing pig iron at an annual rate far beyond precedent—something more than 45,750,000 tons, including the relatively small amount of charcoal iron.

"Full statistics for steel are not yet in, but it is known that the May output was as remarkable as that of pig iron. A number of steel companies outdid their best previous performances not only in steel ingots, but in various forms of finished material. The great Gary plant, in making the largest mill shipments in its history, had not a little company."



Difficulties of Financing Buildings—Brick Business Good

"IN ALL OF THE PUBLICITY given to construction in meetings both local and national, little has been said about the cost of financing," says the Common Brick Manufacturers' Association in its June bulletin. "Simply stating a fact, without comment or criticism, it may be said, that one of the chief items of expense in connection with building is financing. In many large apartment operations today the money costs 20 per cent. That means for every \$1,000,000 borrowed for the operations only \$800,000 actually goes into land and construction. The interest rate may be six per cent. or seven per cent., but this 20 per cent. is a "bonus" or gift to the institution furnishing the money, which is not represented by a single brick or an ounce of steel.

Must Pay Big Bonus for Loan

"Similar rates apply in the building of a home. A man who would borrow \$10,000 for the erection of a residence will probably pay not less than \$600 as a bonus for a three year to five year loan. In other words he makes a present of \$600 to the financing concern for the privilege of loaning him money at seven per cent. He pays interest upon the full \$10,000 during the period of his loan, but he actually never received \$10,000. He has placed to his credit only \$9,400 and he must invest a considerable amount of his own money in the lot and the early stages of construction before he receives a dollar of his loan. It may be six months or nine months before all of the loan has been paid to him, but he is paying seven per cent. upon \$10,000 thruout the operation.

A man who would build a \$20,000 home must charge up against the operation certainly not less than \$1,000 for financing, which is not represented in the building by a single brick or a shingle. The cost of financing a home, whether it costs \$5,000 or \$50,000, is greater than the sub-contract for labor and material, in roofing, in electrical work, or in heating. It is greater than the cost of the brick, generally speaking, and next to woodwork and carpentry, which

is always the largest item, this bonus for financing is the largest individual item in the table of costs.

Regular Banker Too Conservative

"The regular banker will say that this shoe does not fit him, and that is true. But because the regular banker loans upon such an ultra-conservative valuation for construction, he forces the builder to go to the mortgage company or the building and loan company, where these large bonuses must be paid to get money. This is an important factor in building today.

"Reviewing in a word the common brick situation, the reports from 105 manufacturers in 43 states show a reduction in the stock of both burned and unburned brick on hand since the last report and a maintaining of the orders on the books. The orders have increased during the last 30 days in every district of the country except New York and New England, the middle Atlantic states and the agricultural belt just west of the Mississippi. In Illinois and in Eastern Pennsylvania and New Jersey the demand has grown in volume from 200 per cent. to 400 per cent. A buyer's strike is not yet apparent on the books of the brick manufacturers.



CANADA'S NEW TAXES AFFECT CLAY PRODUCTS

General announcements in the budget speech of Hon. William Fielding, Canadian Minister of Finance, on May 11: The sales tax is amended by providing for the imposition of a sales tax of six per cent. on the sale price of all goods produced or manufactured in Canada, including the amount of excise duties when the goods are held in bond. A tax to be payable by the producer or manufacturer at the time of the sale thereof by him, and of a like tax upon the duty paid value of imported goods, the tax to be payable by the importer or transferee who takes the goods out of bond, at the time when the goods are imported or taken out of warehouse for consumption.

Saving 30c Per Ton On Coal Handling

Gasoline Trutractor Proves Efficient Substitute for Wheelbarrows—Cost of Operation Is Small—Use Increasing Rapidly in Clay Industry

ONE OF THE LARGEST manufacturers of vitrified clay products in the Tri-State territory is the Mack Manufacturing Co. The manufacturing plants of this company are located along the Ohio river at New Cumberland, W. Va., and consist of seven separate plants, all of which are operated under the centralized supervision of G. O. Bowles, general superintendent for the Mack Manufacturing Co.

The larger portion of the products from these plants is the manufacturing of the standard shapes of paving brick and blocks. They also make brick of special sizes and shapes for use in gutters, sidewalks, stables, automobile garages, and other manufacturing establishments.

Mack Plants Ideally Located

The location of the Mack plants is particularly favorable, both with respect to transportation facilities and raw materials. Being on the Ohio river, they have transportation east, west, north and south, both by rail and by water. Furthermore, the section in which these plants are located is famous for the quality of its clay for the manufacture of the types of products mentioned above.

A problem of every branch of the clay industry is the transporting and distributing of coal (in this case, direct from the company's own mines) to the various kilns and to the plant boiler house. The usual methods have been to employ men with wheelbarrows, horse-drawn dump carts, or both.

Install Trutractors

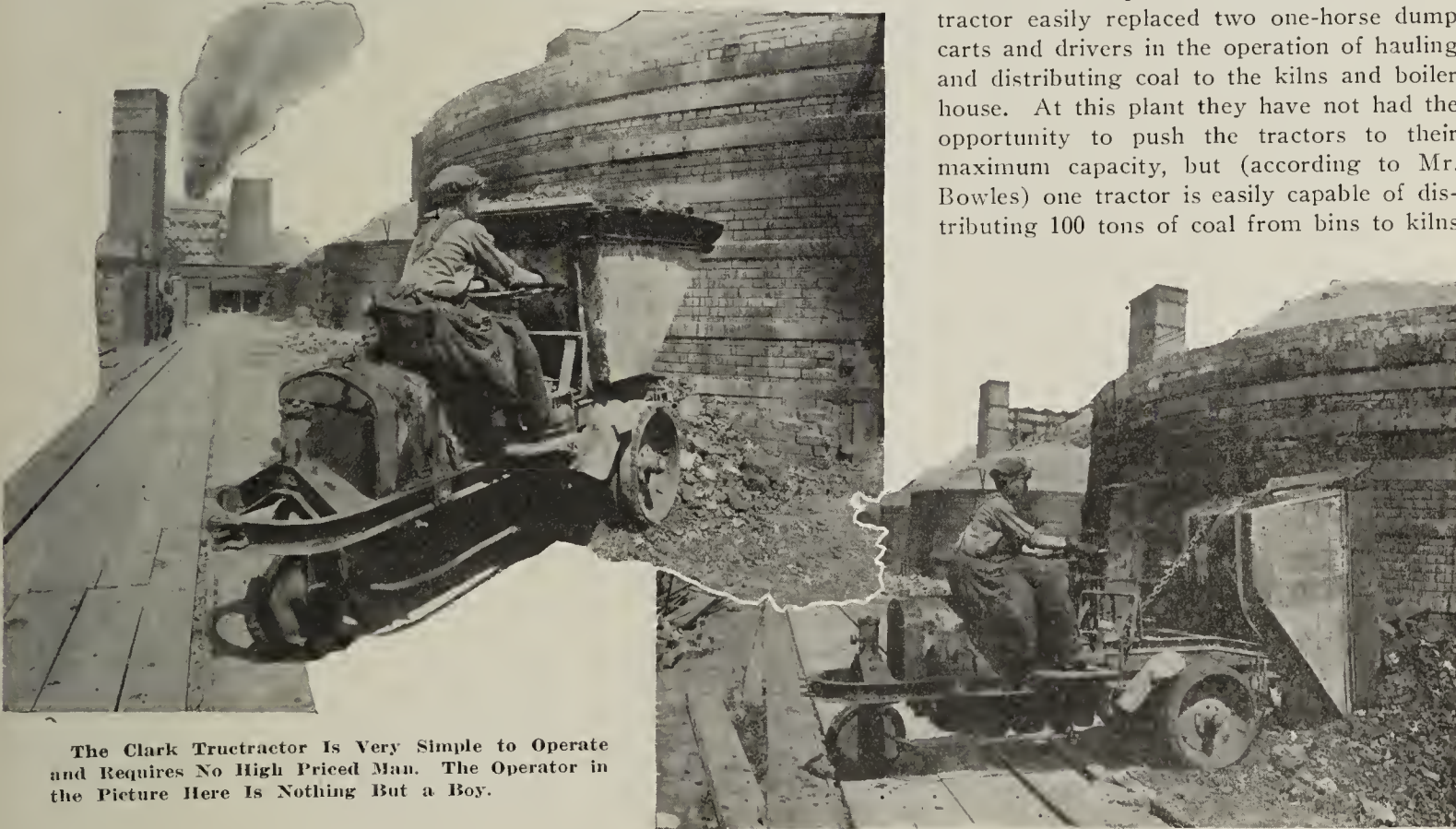
In May, 1920, the Mack Manufacturing Co., after careful investigations, purchased two Clark trutractors of the automatic end dump type in order to speed up this work and decrease its cost.

Editor's Note—All facts and figures given in that part of this article which pertains to the Mack Manufacturing Co. have been checked and verified by G. O. Bowles, superintendent.

At the Union plant, one of the tractors selected easily replaced five men with wheelbarrows in the work of hauling and distributing coal to the kilns and boiler house. The saving effected, figuring on this basis, is clearly indicated by the following tables:

Wheelbarrow Operation	
Five men at \$4.50 per day.....	\$ 22.50
Repairs on wheelbarrows.....	0.00
Total cost of labor and repairs for month (30x\$22.50)	675.00
Depreciation on wheelbarrows:	
Average cost of barrow.....	\$12.50
Cost of five barrows at \$12.50 each.....	62.50
Average life of barrow, six months.	
Monthly depreciation (16 2/3 per cent. of \$62.50)...	10.42
Total monthly cost of wheelbarrow operation.....	\$685.42
Trutractor Operation	
One operator at \$5 per day.....	\$ 5.00
Gasoline and oil, per day.....	2.00
Repairs, material, and labor, per day.....	.50
Total daily cost of operation.....	7.50
Total cost for 30 days (based on above daily average cost of \$7.50).....	225.00
Depreciation on tractor, 3 per cent. per month, 3 per cent. of \$1,700.00.....	51.00
Total monthly cost of tractor operation.....	\$276.00
Summary	
Monthly cost of wheelbarrow operation.....	\$685.42
Monthly cost of tractor operation.....	276.00
Monthly saving effected thru change of method.....	\$409.42

At the Etna plant it was found that one tractor easily replaced two one-horse dump carts and drivers in the operation of hauling and distributing coal to the kilns and boiler house. At this plant they have not had the opportunity to push the tractors to their maximum capacity, but (according to Mr. Bowles) one tractor is easily capable of distributing 100 tons of coal from bins to kilns



The Clark Trutractor Is Very Simple to Operate and Requires No High Priced Man. The Operator in the Picture Here Is Nothing But a Boy.



Hauling Coal Up a Grade to the Boiler House. These Tructractors Carry a Load of Three-Fourths Yard.

per eight hour day—working in a one-half mile round trip haul. Therefore, one can readily see that the tractor can replace at least three and possibly four carts in this operation under the same conditions.

Cost of Operation

In order to stick to **demonstrated** facts, however, we will give the comparative cost data of the operation of a tractor at the Etna plant for the month of December, 1920, and the cost of the same operation of hauling and distributing coal for the year 1919 by means of horses and carts. The month of December, 1920, is taken for the reason that this month's operation of the quantity of coal handled is nearest the average of the monthly amount of coal handled at this plant during the year 1919. Also, during this month the tractor was employed steadily at this one plant from the first of the month up until the day before Christmas, after which there was no work done for the remaining days of the month.

Dump Cart Operation

Cost per ton of hauling and distributing coal to kilns and boiler house at the Etna plant by means of horses and carts for the year 1919, when labor was at least 10 per cent. less than in 1920.....	\$0.271
Add 10 per cent. to make this cost comparative to 1920 costs .....	.027
Comparative hauling cost per ton in 1920.....	\$0.298

Tructractor Operation, December, 1920

Labor and cost of operation—

Charged to kiln delivery.....	\$112.50
Charged to boiler delivery.....	63.75
Total labor charge for month.....	\$176.25
Gasoline and oil.....	54.25
Repairs (material \$23.26; labor \$7.11).....	30.37
Total monthly cost.....	\$260.87

Total amount of coal hauled and distributed during month of December, 1920, 1,633 tons.

Unit cost per ton of coal.....\$000.160

Summary

Cost of dump cart operation, per ton.....\$0.298
Cost of tractor operation, per ton..... 0.160

Saving thru tractor hauling at Etna plant.....\$0.138
1,633 tons x \$0.138 gives us the total thru the use of the tractor\$225.35

The length of haul from the mine tippie to the kilns was about one-half mile to the round trip. The haul to the boiler house was about twice this distance, and over a very narrow platform about six feet wide, with a right angle turn and a 16 foot width platform at the dumping point to turn around on.

Repairs and Labor High in Estimate

Judging from the above charge for operating, two-thirds of the total amount of coal for the month was delivered to the kilns and one-third delivered to the boilers, this making the average length per round trip approximately two-thirds of a mile. It should also be noted in the cost derivation that the labor charge estimated for operating the tractor is excessive in this case, due to the fact that one of the plant engineers operated the machine and his scale of wages was \$1.50 more per day than would ordinarily be paid a tractor driver. In addition, repair charges for the month were excessive in comparison to other months, this excess being at least double the average monthly repair expense. It will be seen, therefore, that these excessive items more than offset the difference in depreciation that is chargeable, as no depreciation has been charged in either the dump cart operation or the tractor operation figures above.

Globe Uses Two Tractors

The satisfying experiences of the Mack Manufacturing Co. with the Clark Tructractor are not unusual or unique. There are other instances where these little gasoline laborers have speeded up work on a clay plant. The Globe Brick Co.



When Not in Use Hauling Coal the Tructractors Can Be Used to Carry Ashes as This One in the Picture Is Doing.

at East Liverpool, Ohio, put in a tructractor in October, 1920, and the results obtained were so satisfactory that a little over a year later they purchased two more which have since been in daily use.

F. G. Porter, manager and treasurer of the company, has the following to say about their tractors: "We have two of these tructractors in use at our Kenilworth plant; the first was purchased October 12, 1920 and the second one on January 24, 1922. They both have been in almost daily use (including Sundays) since their purchase. Cost of tires and other repairs to date on both tractors including labor for repairs totals \$351.45. We replaced some of the tires last month and cost of same is included in the above amount. Both tractors are today in A-1 running shape.

Use for Hauling Coal and Ashes

"One tractor is used for coaling kilns and boilers, the other for hauling cinders, bats and other refuse to dumps. We now employ one man for each tractor and they handle all the material.

"In coaling the average monthly tonnage handled is approximately 2,000 tons.

"For this tonnage and for handling cinders and refuse, our expenses for a 30 day month for men, mules, carts and so forth, averaged \$930 per month. With the two Clark tructractors now in use, our expenses for a 30 day month average \$403.10; this includes such items as labor, gasoline, oil and average for repairs taken from the expense bills as per the amount stated above.

"This represents a saving of \$526.90 per month over the old way.

"Working conditions are much better. Since putting on the tractors we have had to make only one change in men, while with mule and carts it was everlastingly hire men for the job and they were never satisfied with the conditions.

Says Saving Is Very Great

"We figured that the tractors paid for themselves in the first eight months. They are a wonderful saving of time and labor."

C. F. Fernsell of the National Fire Brick Co., Strasburg,

Ohio, also has some very interesting information about his tructractor installation. He says, "Altho we do not have any figures covering the difference between the cost of hauling coal with a tructractor as compared with the horse and cart method, we were nevertheless so well satisfied that the saving was very great that two more of these machines were purchased for one of our factories in Pennsylvania. The man operating this machine works ten hours; he coals the kilns and hauls the ashes from the kilns. His average haul one way is about the length of a city block. We have had very little trouble with this machine."

And at Fiske & Co., Inc., Watsontown, Pa., one of these machines, according to C. Forrest Tefft, assistant factory manager, distributes coal from the stock pile of the kilns and is effecting a saving of 30 cents per ton on the cost of handling coal as compared with the old method.

* * *

FORM BRITISH PAVING BRICK ASSOCIATION

The organization of the British Paving Brick Association has been completed and steps will be taken to determine which of the 54 samples submitted by English manufacturers are suitable for use as paving brick. Membership in the association will be limited to those manufacturers who possess a clay which can be manufactured into a paving brick capable of withstanding the standard American rattler test. The committee which worked out the details incident to the forming of the association insisted that no failures shall be permitted thru the use of brick which have not passed the approved tests, and that the association's recommendations to surveyors as to the brick used and the methods of laying them shall be recognized by road authorities.

* * *

A. S. T. M. MEETING JUNE 25

The Twenty-sixth annual meeting of the American Society for Testing Materials will be held at Chalfonte-Haddon Hall, Atlantic City, New Jersey, during the week of June 25, 1923. Because of the increased volume of reports and papers that must be considered at this meeting it has been found necessary to hold 13 sessions.

Fire Brick Disintegration

Authors, in Paper Before Meeting of American Iron and Steel Institute,
Tell Causes of Disintegration of Refractories and Suggest Remedies

C. E. Nesbit and M. L. Bell

Research Engineers, Carnegie Steel Co., Pittsburgh, Pa.

DISINTEGRATION as applied to linings of blast furnaces making iron, is a term used to describe a cracked, shattered or crumbling condition of some of the brick found in a used lining. The degree of disintegration may vary in different linings from a few cracked brick to those in which all resemblance to a brick has been lost and only a coarse, sand-like material remains. Disintegration seems to be greatest from 40 to 50 feet from the top of the furnace, and appears to be more prevalent today than it was 15 to 20 years ago.

The direct cause of disintegration has long been a mooted question. It has been suggested that the presence of alkalis has a direct bearing on the destruction of fire brick by disintegration, but the alkalis are volatilized by the first heat and combined with the brick where the temperature is high, and where there is little, if any, disintegration. Brick taken from used linings have shown more than ten per cent. of alkalis and were not disintegrated.

Furnace Brick Change in Composition

It has often been stated that furnace brick change in composition in service. A very careful study of a number of analyses of fire brick before and after service showed that this is the case. The samples after service were taken from the highly heated end of the brick after about three inches from the inner face had been removed. While these brick had undergone a marked change in ferric oxide and alkalis and had absorbed carbon, none was disintegrated. Analyses of brick from the center of the cooler portion of the lining showed little change in composition other than having absorbed carbon, yet they were disintegrated.

If a brick contains free or loosely combined ferric oxide, large volumes of carbon will be deposited when carbon monoxide is passed over the brick between certain temperature ranges when this reaction is carried on within the body of a brick, but disruptive force is produced sufficient to fracture the brick. Such a reaction would produce all the characteristics of brick failures in furnace lining.

Iron Increases Disintegration

In order to find out whether added amounts of iron ore had any effect on disintegration, a series of tests was made in which it was found that with added amounts of iron ore there was no disintegration in the brick without added ore, a slight cracking at .25 per cent. and a marked increase in disintegration within increasing percentages of ore, the last of the series being so badly shattered that it was almost impossible to handle them without the brick falling apart. Brick containing 1½ per cent. of iron pyrites failed practically in the same manner as brick with corresponding amounts of iron ore.

Results of Hard Burning

Test brick made from the selected clay without the addition of iron ore showed no disintegration after being subjected to carbon monoxide for 36 hours. Ordinary commercial brick placed alongside of these brick failed completely in ten hours. The brick broken in either concentrated carbon monoxide or by long exposure to blast furnace gas showed the same characteristic shattering, carbon spots and discoloration.

The tendency will be to burn all brick hard. This may prevent the disintegration to some extent but will result in the failure of the brick from other causes. Hard burning makes a brick sensitive to thermal changes and there will be excessive spalling, particularly in such locations as the top of the blast furnace, where the brick must stand rapid changes in temperature due to cold charges coming in contact with the heated brick work.

It was found that the ease with which the brick were disintegrated was influenced considerably by the method of manufacture—that is, whether they were auger made, steam pressed or hand molded. The auger made brick, being laminated, fractured along the lines of weakness. Steam pressed brick usually failed by the brick spreading lengthwise. Hand made brick fracture irregularly. Some difference, however, was observed in the disintegration of coarse and fine ground brick, the fine ground brick disintegrating to a slightly greater extent.

Carbon Deposits Disrupt Brick

To show that the disruption of a brick is due to mechanical force exerted by deposited carbon, a chrome, magnesite, silica and fire brick were drilled with a ½-inch hole extending to the center of each brick. Two grams of iron ore was placed at the bottom of each hole and the holes plugged with refractory cement. On account of the strength and density of chrome and magnesite brick, additional holes were drilled one inch from the end of each brick and treated in the same manner. The brick were then subjected to the test and, with the exception of magnesite, all were cracked. The magnesite and particularly the chrome brick contain considerable iron in combination with their other elements, but apparently this combined iron did not have any influence on disintegration.

Determining Disintegration Resistance

Producers and consumers by the use of the disintegration test, have at hand a ready means for determining the resistance of a brick to disintegration. If brick of unknown properties are put thru the test, and a brick of satisfactory properties be included for the purpose of comparison, results can easily be obtained in ten hours which will show whether the unknown brick has sufficient resistance to disintegration to be used in a blast furnace lining.

Brick used in blast furnaces making iron cannot be protected from furnace gases. This gaseous atmosphere can not be changed. Some of the gas will penetrate the brick. If these brick contain free ferric oxide, the carbon monoxide in the furnace gas will react with the ferric oxide and deposit carbon. To prevent disintegration effectively, the brick must be free from uncombined iron oxide. Such brick can be made only from clays free from these compounds.

This ideal condition rarely exists and provision for sorting out undesirable compounds must be provided. The almost universal practice of taking the clay direct from the mine to the yard should be stopped. Separating the iron compounds from the clay by washing, screening and grinding is not

practical. The only practical remedy is to weather the clays in a layer not over two feet thick for at least two months. Sufficient space to insure the necessary supply for this period must be provided. If the weather is dry, the layer must be watered weekly. This treatment will oxidize the iron compounds, which will be apparent by a change to a brown or yellow color. Such lumps or patches must be discarded and only the unstained clay used. Should the clay slake or break up readily, it should be turned over with a plow or some mechanical means to expose the under side and the sorting repeated after weathering.

Hard Burning a Poor Remedy

A medium burn is all that is permissible in a blast furnace brick. Hard burning is at best a poor remedy for the disease of disintegration. It reduces the sensitiveness of the brick to disintegration, but injures it by increasing the susceptibility to rapid changes of heat. These conditions exist at the furnace top, in the hot blast mains and stoves. The real cure is to use clay which is naturally pure. When such clay is not available, the clay should be freed from objectionable iron compounds by such treatments as will yield commercially iron-free clay.



PLAN TO STABILIZE BUILDING INDUSTRY

Plans of the American Construction Council for stabilization of the national building industry, were formulated at a meeting of representatives of the council of New York, May 31. These plans will center in the constant gathering of data as to country-wide construction conditions and the issuance of weekly bulletins analyzing them and making forecasts therefrom. This movement was given the hearty

endorsement of Herbert Hoover, Secretary of Commerce, who announced that the department which he heads will cooperate with the council in the work it has undertaken.

At a two hour conference between Secretary Hoover and the special committee of the Council, there was formulated a basis upon which the council and the Department of Commerce might work together to minimize, and if possible, eliminate the seasonal evils which for many years have so seriously hampered the building industry.

The way in which this will be accomplished is by spreading the building peak over the year thru the retarding of all but the most essential construction. This is in line with Mr. Hoover's idea of withholding public construction during times of great private building activity.

Franklin D. Roosevelt, president of the American Construction Council, in speaking of the plan, said:

"It consists, broadly, in gathering by a special department of the council a vast amount of data from constructors and material manufacturers and adding them to special statistics obtained from government sources thru the cooperation of Mr. Hoover's department and from the Chambers of Commerce thruout the United States. These figures analyzed and simplified by experts appointed by the council will form the basis of a weekly forecast of construction conditions so far as the demand and availability of material is concerned."



SLIGHT GAINS IN FACE BRICK PRODUCTION

Production of face brick by 32 identical plants amounted to 23,515,000 brick in April, as against 23,004,000 produced in the preceding month. Stocks in sheds and kilns on April 30 were 65,447,000 brick, as compared with 67,511,000 brick held at the end of April, 1922.



Clay Industry Booms in South—47 New Companies Formed

THO THERE APPEARS to have been some falling off in orders received by the brick manufacturers thruout the southeastern territory during the past few weeks, production continues at capacity in virtually all plants, during April and May being around 15 per cent. greater than in March, as nearly as can be ascertained. Strangely enough, in spite of a decrease in orders during April as compared with March, the volume of unfilled orders at the end of the month was substantially larger than at the end of March, or at the end of April, 1922. This statement is based on a report by the Federal Reserve Bank of Atlanta, and covers the whole Southeast; April is the most recent month when definite figures are available, but it is certain that there was also a tremendous volume of unfilled orders on hand at the end of May, far more than at this time a year ago.

Production in South

It will be interesting to note definite figures on April conditions, which will be about the same as May when the latter figures are available. Production in April was 14.9 per cent. greater than in March, and 6.6 per cent. greater than in April, 1922. Stock on hand at the end of April was 7.3 per cent. greater than at the end of March, and 30.8 per cent. greater than at the end of April, 1922. Orders booked during the month experienced a decline as compared with March, but there has been some improvement in the past month, due to increased building activity. There are about 25 to 30 per cent. more workers employed now than at this time a year ago, and about 10 per cent. more than two months ago.

One of the most tangible evidences of business improvement is noted in an authentic report on the number of new

brick and clay-working companies that have been incorporated in the Southeast from the first of January to the end of April. The total number of such incorporations during the four months under review was 47, probably the largest number of such companies formed in this district over a similar period of time in the history of the industry. In April alone there were 13 such incorporations. Many of these are large companies establishing new plants in the district.

Financially the district is in the best shape it has ever been, the Federal Reserve Bank states, and this is keeping building activity at a high mark.

Export Business Continues Brisk

Reports from manufacturers also indicate that export trade continues to hold up well, and that there has been a gradual improvement since the first of the year, with considerable quantities of southern made brick going to Latin-American countries. There is every promise at present that 1923 will prove the most prosperous export year in the history of the industry in the South.

Prices are holding comparatively stable, having advanced the past two months because of increased labor costs, but the fact does not appear to be having any material effect on demand.

In Atlanta, Ga., a new building record undoubtedly will be established this year, the total probably exceeding \$30,000,000, according to present indications. The most construction at this time, outside of Atlanta, is in Florida, and includes largely hotels and apartment houses.

Cuts 80 Feet of Clay in One Sweep

Shale Planer of Record Height Puts Blasting Equipment and Steam Shovel Out of Job—Enables Perfect Mixture to Be Won at Low Cost Per Ton

NEW POSSIBILITIES in pit operations have been demonstrated by the Collinwood Shale Brick & Supply Co., Cleveland, Ohio, with the installation of an 82 foot shale planer in its 80 foot pit. This planer is the largest in the world, it is believed, and is interesting because it shows that apparently there is no limit to the height at which this equipment will operate successfully.

The bank of the Collinwood company was always worked to its full depth as the photographs, here reproduced, will show. Before the installation of the planer, however, the winning of the material was accomplished by first blasting the high bank and then digging the loosened material with a steam shovel. Now the blasting is entirely done away with and the pit worked for its entire height simultaneously, giving a perfect mixture of all the different strata of shale.

Every clay man knows that the deeper a pit can be worked successfully, the cheaper the cost of winning the clay will be. Therefore this installation is of considerable interest to the clay industry. It proves that deep deposits of hard clay and shale can be worked with the same ease and with less expense per ton of clay dug than the shallow banks.

Credit for the conception of this planer and its installation

and successful operation, in spite of pessimistic predictions by experts, goes to H. C. Moatz, president of the Collinwood Shale Brick & Supply Co. Under his direction the plans for the gigantic machine and its construction, were developed by the Eagle Iron Works, Des Moines, Ia. Six weeks were required to build the machine at the Collinwood plant. It operates exactly like the ordinary planer and has no unusual features except its great height.

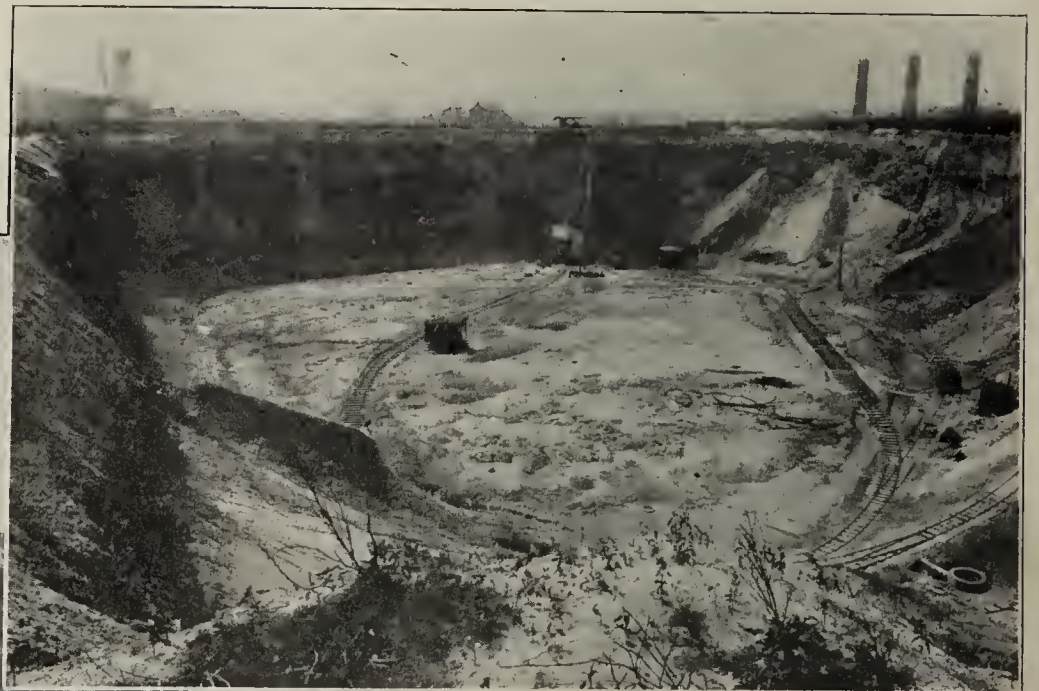
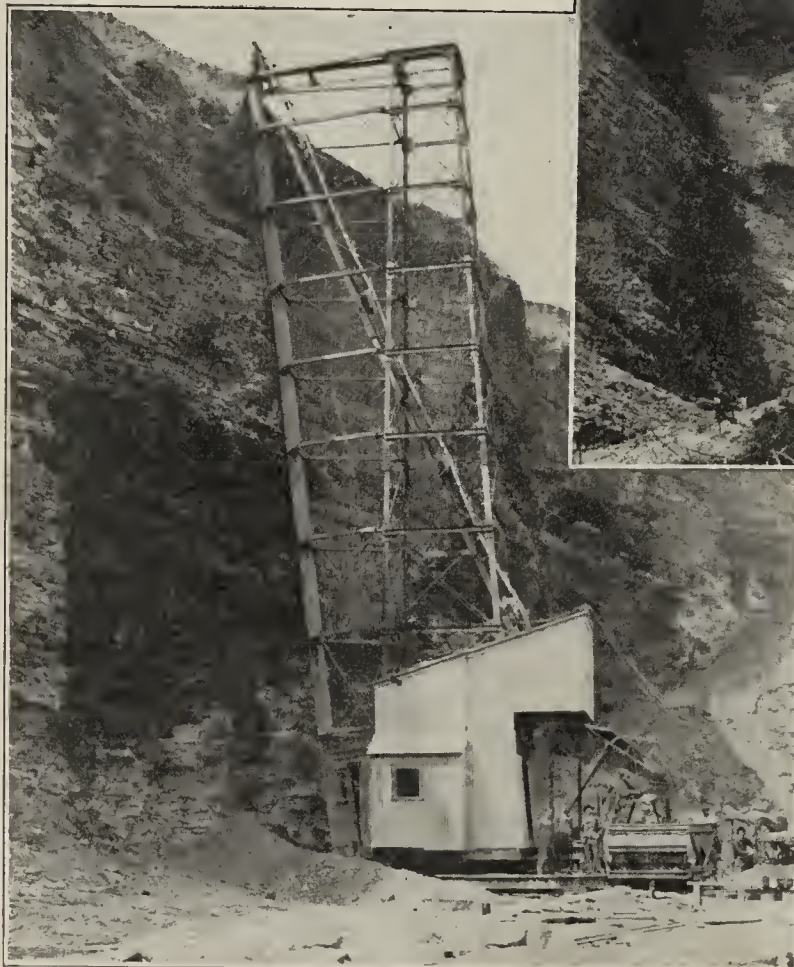
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WIN FIGHT FOR NEW FREIGHT RATES

On complaint of common brick manufacturers, particularly in the vicinity of Chicago, the Interstate Commerce Commission has modified its order which became effective October 16 last year with respect to the description and loading requirements of common brick. The Commission ordered that for distances not in excess of 150 miles, the rates on common brick, loaded at random to the marked capacity of the car, without protection against chipping or breaking, should not exceed 80 per cent. of the corresponding rates on articles in the uniform brick list.

In publishing rates on common brick pursuant to the

The Collinwood Shale Brick & Supply Co. Has Installed the 82 Foot Shale Planer Here Shown in Its Pit. An Idea of the Size of the Pit Can Be Gotten from the Picture at the Right. This Is the Largest Planer Installed Anywhere.



Commission's decision, the carriers generally incorporated in the tariff description of common brick the explanation that the words "at random" signify "thrown in the car and not tiered." The manufacturers complained that this interpretation of the Commission's order works hardship on common brick producers, in that because of the method of loading required in the railroads' tariffs, it does not permit them to load to the marked capacity of the car, and is otherwise objectionable.

A plea made to the Commission that sand-lime brick should be included within the description of common brick in order to secure the 80 per cent. rate was denied. The Commission stated that the evidence with respect to sand-lime brick was inadequate to permit determination of the question. The standard brick rates now apply on sand-lime brick.

Selling the Right Color Face Brick

Modern Face Brick Salesman's Job Demands Knowledge of Color Schemes—Shows Importance of Having Good Shaders

Frank Price

Claycraft Mining & Brick Co., Columbus, Ohio.

IN ORDER to do justice to the most beautiful and plastic of all building materials—brick, it is necessary to acquaint oneself with the glorious color harmony inherent in burned clays.

With all the different colors obtained, one has at his command about all the possibilities of the painter's palette.

The question of color as applied to the face brick industry is very broad. It is always a good plan for the salesman to suggest to his customer the proper color scheme to use even if the customer wants a different shade or texture. Then, if the builder is not satisfied with his own selection he will think of the suggestions made to him and realize that the face brick salesman knew what he was talking about. And thus will be born confidence in the salesman's knowledge of the product he is selling and its proper use.

Importance of Proper Shading

Before taking up the question of color from a selling standpoint let us consider its importance at the factory.

The manufacturer, in order to give the salesman what we term a "straight shade" of brick must sort as near to one color as possible—and it is necessary in the proper treatment of some jobs to have as near an absolutely "straight shade" as can be gotten. Now we all want to get those straight shades, but we have numerous troubles in getting them and I doubt whether all manufacturers have given the matter just the proper thought.

When the superintendent of a plant picks a man to be a shader, he should pick his man for that purpose and that purpose only, right at the start—not let him start in as a wheeler, later become a loader or something else, and then put him to shading regardless of the probable physical defects of that particular man. A great many of us have certain defects of vision that would enter materially into the sorting of brick. Light conditions and the kind of kiln illumination also enter into it.

Simple Test for Shader's Vision

Now, in selecting his men it would of course be impracticable for the plant superintendent to give them a rigid physical examination with a long list of different light tests, but there are some simple experiments that can easily be tried out. One way is to take a little disc of glass and coat it with gelatin; then stain it with bichromate of potash which will give it a very faint tint of yellow; place this glass in an ordinary cardboard mailing tube and have your man look thru the tube towards a white sheet of paper. If he can distinguish that very faint yellow tint the chances are he has sufficient accuracy of vision to become a good shader.

There are very many men who could not distinguish the tint at all and such men would have difficulty in distinguishing slight differences of shades in red or buff burned brick.

Daylight Varies Considerably

Many people think that daylight is the best light for sorting. Certain kinds of daylight are, but daylight will vary in

a 100 different ways. If you are so situated that you can let daylight into the kiln it may be all right. But even then you may get a reflected light, the color of which would be a tint of any object reflecting it. Then again, the daylight itself may not always be of the same strength and color just as in the evening or at certain times during the day your light will vary in its shade. Nature's lights are always changing, so we really have no standard there to go by. Some manufacturers use artificial light in the winter and early spring, and daylight thru the summer months, when the



A Simple Test for Determining the Accuracy of a Shader's Vision. For Explanation See Text.

days are longer, and into the fall. They have daylight in all its changing phases, as well as artificial light when daylight is impossible, and it is difficult to get a uniform shading of standard shades under those conditions.

Have Right Light in Kiln

When you use a carbon filament lamp in the kiln you get a tint of yellow. In that case the shader must learn to see brick in the kiln as a certain shade and also to identify it in the different light outside. If we can get a source of illumination in the kiln which will give a clear white light the result would be more nearly the same inside and out. There is what is called a "daylight lamp" that can be used in the kilns. The globe is of blue glass; this glass filters the rays of red and yellow light that pass thru and the result is a clear white light thruout the kiln. If you have an unvarying white light and plenty of it you have a standard to go by, and a man can then sort brick inside the kiln as well as outside. So if we can get the proper lighting inside and out before we attempt to sort the brick, we will come closer to obtaining brick of a "straight" shade than in any other way.

To get back to the shaders. If you put a man with an erroneous perception of color in one end of the kiln, and another man with accurate vision in the other end, it is obvious that those two men will sort different shades and call them by the same number. When those brick are put into the pile you know what the result will be—they will not match.

When the salesman goes into the field he has a great many different conditions to contend with. Some people know

Editor's Note: This article is from an address delivered by Mr. Price before the Ohio Red Division of the American Face Brick Association.

what they want when they build, others think they know, and still others are uncertain and have no idea of just what will satisfy them. A great many people when building their first house will go over the kitchen, living room, bedroom, closets, and so forth, with the minutest detail, insisting on just exactly what they want. But when those same people select the brick they simply go out and look at a building; they see in that building a certain brick and that is what they want regardless of anything else. Now, as I see it, it is the duty of the salesman to go out and see if he cannot make them a mental picture of the exterior of their new home. They doubtless have not taken into consideration the mortar color, the trim, the surroundings, trees or adjacent buildings, and the salesman should see to it that if the scheme is not harmonious something else is suggested. Very often prospects will build a house that is very much broken up and the wall they like best will be a mingled shade. With a house broken up in design it is better to use a straight shade of brick. Where the design is not broken up so much and there are larger surfaces a mingled shade will be better.

Problems to Be Met

The salesman should also know when he suggests his color scheme what color the trimmings are going to be. Nine times out of ten when you ask prospects what the trim is to be they have nothing to say—had not even thought of that.

Then, a prospect will want to duplicate exactly a house of some friend or acquaintance, and sometimes it simply cannot be duplicated because the house the prospect favors has probably been mellowed by age and no new mortar color or trimmings could possibly give the same effect. A great many people insist on trying it, however, and if the finished house is not a reproduction of their mental picture, it will come to them very forcefully that the salesman had warned them of just this difficulty. They will speak to other people about it and deplore the fact that they did not follow the salesman's advice. This cannot help but increase public confidence in the salesman's integrity and knowledge of his job.

The face brick manufacturer must look into the future.



In Building a House Where the Wall Area Is Broken Up as Much as in the Home Shown Here, a Straight Shade of Brick Should Be Used

We will have later on a condition which will be radically different from the present. The pupils in the public schools are today taking up color harmony. They will be studying it more and more as time goes on and it is time for the face

brick industry to give thought and study to color harmony so that the rising generation will appreciate rather than criticize our efforts.

Be Careful of Surroundings

There are many different kinds of building operations. There is the new addition, for instance—the new subdivi-



Mingled Shades Would Look Best in the Walls of a House with Large Wall Surfaces Such as This.

sion. A man is going to build in a new addition, and the chances are that red burned brick will predominate in that row. If he is going to build other than on either end of that row he has to be careful to select a brick that will not break up the line of color. If he is building on the corner he can select about any color of treatment he wants, but if he is midway in the row anything but a red burning brick would be out of harmony with the balance of the row.

In a great many cases there is a long row of homes built on the same line, all of red burned brick, reds, browns or gunmetals. A man will come along and want something different. That seems to be what they all want—something different. He will say he wants buff brick in that row. Well now, buff brick are beautiful and will make a fine home, but a buff brick house placed in that row will give the effect when viewed at a distance that there is an unfinished something—it is too contrasty in tone for the rest of the buildings. The effect is just the same as if you would take a certain file of uniformed men and put in that file a man in a suit of overalls. He would break the uniformity of color and look out of place. You would have the same effect as if you placed a smooth buff brick in a wall of red burned mingled shades. It would spoil the symmetry of color.

Now we have the more pretentious home built on a spacious lot. We can use red brick in there, or we can use mingled shades, browns, buffs or greys. If we use a brown brick and there are a great number of trees, green grass, blue sky, and we put a dark

brown building there it will appear rather sombre unless there is a large amount of trimming to liven it up. The selection of this type of house, however, is more often taken care of by the architect. In the selection of the individual house, it is just a case of the most pleasing color to the eye of the owner. In color schemes, yellow, red and green are the colors that please the eye most.

Then we have the contractor—the contractor very often considers the cost first. But if the salesman will suggest to that contractor that the more beautiful that building is when completed, the more beneficial it will be to him in getting future contracts, I believe we could influence these men a great deal, and there again is the point that if he makes a mistake it will come back to him. If he has made a good job it will help him to get future business and teach him to pay more attention to the colors he uses.

Architect Often Specifies Brick

Then we have a condition sometimes where the architect absolutely specifies what he wants. As a rule the architect is well versed in the propriety of color treatment if he is one of the more experienced architects, and it is not good policy to interfere. But there are a great number of architects who would rather get rid of the selection of brick because they do not want to assume the responsibility. That is one place where the salesman can take some work off the architect's shoulders and also build up the confidence of the people, if he knows what is good as a color scheme. If he selects a satisfactory color scheme for that building it will reflect back on his ability. By doing these things the time will come when the people will be educated to have confidence in the salesman and in his ability to suggest proper colors, and it will be a great benefit to the face brick business.

Strange to say, tho a brick man may know his business from A to Z as a salesman, the people do not give him credit for knowing it. When it comes to color they do not give him credit for anything. The salesman really should know more than he does and he should in each case put his suggestions before his prospects if for no other reason than the future benefit that may be derived.

Often See Bad Color Combinations

Take a row of frame houses and paint them all white—they look pretty, clean and white. But when you start building up the section, one man will want a different colored house than another, and consequently you soon have a wide variation in color. If you ride along some of these rows of frame houses you will see some of the worst combinations of color imaginable.

But in brick we have a more pliable product. In our mingled shades we have the harmony and color in the wall and there is a greater chance to select different mortar color and trimmings and have the houses look different. You can get different effects by using the same brick with different mortar treatment, different trimmings, and a slight change in the mingle will make a complete variation and still have color harmony.

* * *

MAY BUILDING LARGEST ON RECORD

May construction volume was the largest on record, according to F. W. Dodge Corporation. The previous high record was in May of last year. The increase shown last month over the previous May was nearly five per cent. This increase was shown in the 27 northeastern states, which include about three-fourths of the country's total construction volume. In the first five months of the year the increase over the corresponding period of 1922 has been 13 per cent.

Many observers of late have stated that the construction

program this year is in excess of the capacity to build. The situation has become acute in New York City and other Eastern centers. In fact, New England, New York and the Middle Atlantic States have already shown a turn in construction volume, the big May increases being evident in the Middle West and the South.

Total contracts awarded during May in the 36 Eastern States (including about seven-eighths of the total construction in the country) amounted to \$433,906,000. The increase over April was 9 per cent. Residential construction showed a slight decline; industrial and business buildings showed increases. Residential construction amounted to \$168,216,000 or 39 per cent. of the month's total. The other important items were: \$83,817,000, or 19 per cent., for public works and utilities; \$62,979,000, or 15 per cent., for industrial plants; \$59,510,000, or 14 per cent., for business buildings; and \$30,453,000, or seven per cent., for educational buildings.

Contemplated new work reported during May amounted to \$641,686,000, a slight decrease from the amount reported in April.

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PACIFIC NORTHWEST ASSOCIATION MEETS

The brick, tile and sewer pipe division of the Pacific Northwest Clayworkers' Association held a meeting Saturday, June 2, 1923, at the University of Washington, Seattle. The session was very interesting and devoted for the most part to the discussion of the production problems confronting clay products manufacturers. The subject of auger machine and die working was thoroly gone into by Hewitt Wilson, George Adderson, superintendent of the Renton plant of the Denny-Renton Clay & Coal Co., and F. T. Houlahan. For the benefit of those attending there were distributed mimeographed copies on which were summarized the most important literature on subjects relating to the auger machine and die.

The subject of bricklaying schools, which is now arousing such widespread attention thruout the country, also came up for discussion and was featured by two interesting addresses by C. W. Cook, instructor in bricklaying in the Seattle public schools, and Roy H. Clinton, secretary of the local bricklayers' union.

Following the afternoon session, the delegates gathered again for a dinner at which were discussed the future work and meetings of the division. Prof. G. E. Goodspeed of the department of geology of the University of Washington, gave an illustrated lecture on "Origin and Geology of the Shales and Glacial Clays of the Puget Sound Region."

The meeting closed at a late hour with a feeling permeating the entire assemblage that the time had been well spent.

* * *

PHOENIX MAKING NEW FACE BRICK

C. W. Martin, president of the Phoenix Clay Corporation, Magnolia Building, Dallas, Tex., reports that the demand has slowed up somewhat after an unusually active period. He states that the greatest demand was for face brick for big buildings. During April and May there was registered an increase of at least 25 per cent. His company recently put a new face brick on the market, which is a decided departure from anything yet seen in the southwestern territory. The brick is being manufactured in sizes 2x3x8½ and shows only two inches of face, but gives three inches of hollow space in an Ideal wall and a Flemish Bond appearance. The brick are wire cut and more than 250,000 were sold in the past 30 days in Dallas. The concern is planning to institute a selling campaign and recently had a display of the new product at the Dallas Food and Homes Exposition staged by The Dallas News and The Dallas Journal at the Coliseum.

What Does Your Power Cost?

Comparison of Cost of Operating Diesel Engine and Steam Power Plant—Diesel Shows Saving of \$0.80 to \$1.44 Per Thousand Brick Manufactured

Richard Repine

Engineer, Hadfield-Penfield Steel Co., Bucyrus, Ohio

Editor's Note.—The subject here discussed—the efficiency of the Diesel engine—is one that has in recent years evoked the widest interest among engineers and operators of power plants. There are so many points in its favor that the development of the Diesel engine has been extremely rapid. Its use in important positions in industry, where reliable and sturdy service day after day is required, proves conclusively that the experimental stage has been passed. The Diesel engine now merits the best consideration of every clay plant manager who believes in the central power plant. Its biggest advantage lies in the economy with which it can be operated from a standpoint of both fuel and labor.

THE QUESTION of reducing production costs is constantly before the executives of manufacturing plants in the clay industry as well as in other lines of manufacture. Power costs are a large percentage of the total cost of most things manufactured.

In the past, the power problem was not given much attention as the price of fuel was low and the cost of attendance was not high but with the increased cost of coal and labor, the cost of power has also increased and today the executives

of clay plants are asking the engineer, "What does our power cost us?"

Items Included in Power Costs

There are a number of items that enter into Power Costs and these items are classified under two general headings: Fixed Charges and Operating Charges.

Fixed Charges consist of: Interest on money invested in the plant. Sinking fund to take care of depreciation, insurance and taxes.

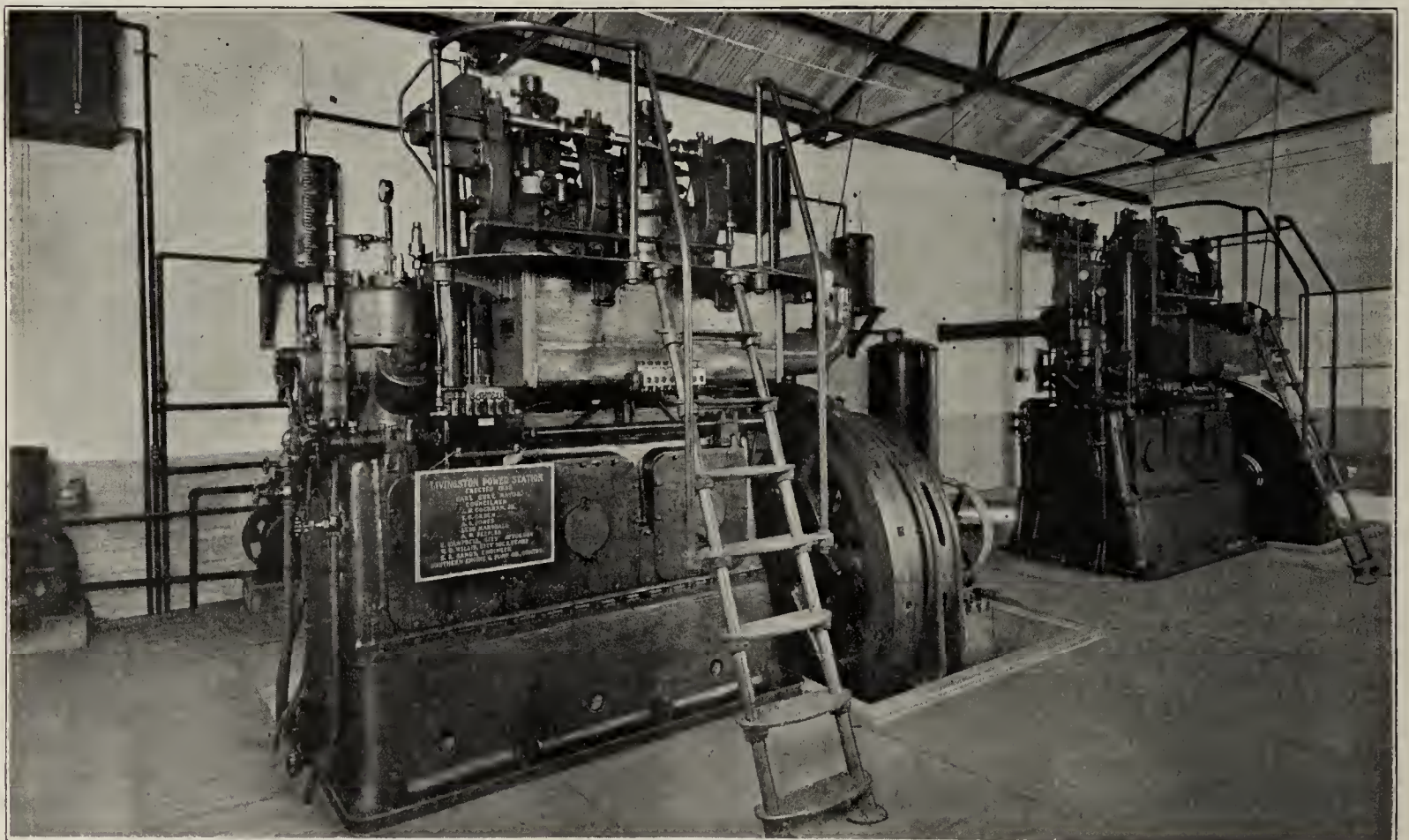
Operating Charges are: Fuel, lubricating oil, labor, water, waste and supplies and repair parts.

Fixed Charges are constant, while all items under Operating Charges vary with the load except labor.

For Fixed Charges, it is customary to allow 6 per cent. for interest on the money invested, 2 per cent. for insurance and taxes, and 5 per cent. for depreciation, or a total of 13 per cent.

Steam Plant Cheaper than Diesel

Under Operating Charges there is 3 per cent. on the capital invested for maintenance. This item would allow for 60 per cent. of the original cost of the equipment in a 20 year period.



View of Two Diesel Engines in Use in the Power Plant at Livingston, Tex.

A steam plant with a slide valve engine and auxiliaries as usually furnished with this type of engine will cost approximately 30 per cent. less than a Diesel engine plant, while a steam plant with the most modern equipment will cost but 10 per cent. less.

Assume a plant consisting of one 200 horse power engine and one 100 horse power engine was required to operate a plant making 50,000 brick a day, the 200 horse power engine to drive the main plant and the 100 horse power engine to drive a generator for furnishing light for the plant and power for transfer cars, fans and small motors about the plant.

Cost of Diesel Plant

A Diesel plant as outlined above complete and ready to operate can be purchased for \$28,850, a steam plant with a slide valve engine and auxiliaries for \$19,355, and a steam plant with modern equipment, \$26,085. The building to house the equipment could be built for \$2 a square foot. The Diesel plant would require a building 30x40, or 1,200 square feet at a cost of \$2,400. The steam plant would require a building 40x80, or 3,200 square feet, at a cost of \$6,400, and there would be a room for coal storage in front of the boilers 40x20 or 800 square feet, at a cost of \$1,600, making a total of \$7,000 for the building.

The plant cost would be as follows:

	Steam Plant No. 1 Slide Valve Engine	Steam Plant No. 2	Diesel Engine Plant
Equipment	\$19,355.00	\$26,085.00	\$28,850.00
Building	7,000.00	7,000.00	2,400.00
	<u>\$26,355.00</u>	<u>\$33,085.00</u>	<u>\$31,250.00</u>

The equipment given above would develop sufficient power for operating the average brick plant of 50,000 capacity when operating ten hours a day.

Cost of Operating Steam and Diesel Plants

As the amount of power required differs with the character of the clay, we will assume that the average plant will manufacture a thousand brick with the expenditure of 80 horse power hours for all power purposes and that 4,000 horse power hours would be developed each day and for 300 days

per year or a total of 1,200,000 horse power hours.

The average cost of coal is \$4.50 per ton and fuel oil five cents per gallon. With these fuel prices, the operating costs would be as shown in the following table:

	Steam Plant No. 1	Steam Plant No. 2	Diesel Engine Plant
Fuel 5,400 tons of coal at \$4.50 per ton	\$24,300.00	Fuel 3,000 tons coal at \$4.50 \$13,500.00	Ten cars fuel oil at \$4.00 a car \$4,000.00
Oil, Waste, Supplies	600.00	800.00	415.00
Labor	5,400.00	5,400.00	3,600.00
Maintenance 3 % of cost	790.65	992.55	937.50
	<u>\$31,090.65</u>	<u>\$20,692.55</u>	<u>\$8,952.50</u>
Fixed Charges 13% of Cost	3,426.15	4,301.05	4,062.25
	<u>\$34,516.80</u>	<u>\$24,993.60</u>	<u>\$13,014.75</u>
Cost per M.	2.30	1.66	.86
	<u>.86</u>	<u>.86</u>	
	1.44 Saving	.80 Saving	

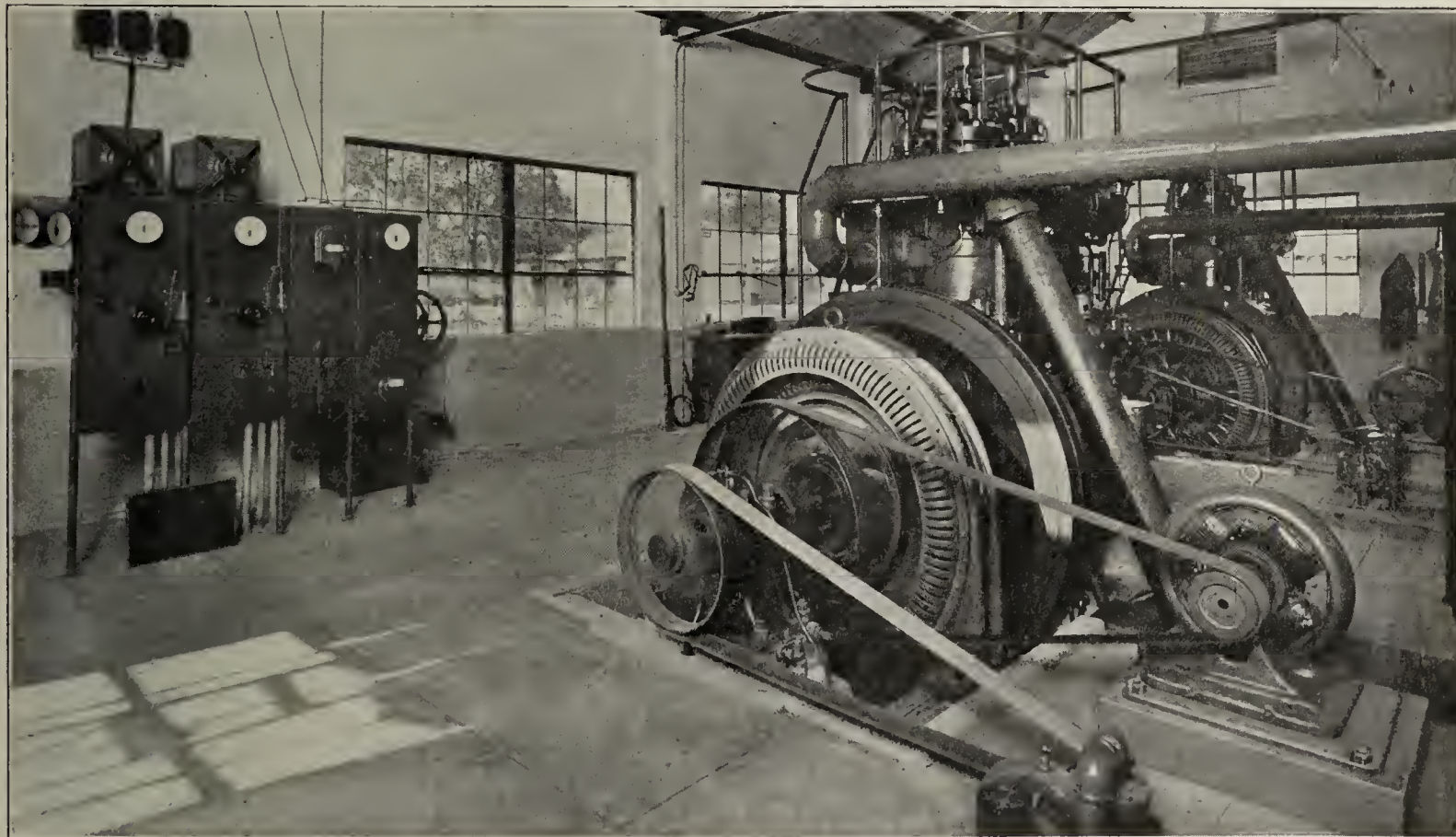
In a steam plant, 65 per cent. of the total cost is for fuel and a slight rise in fuel prices is a more serious matter than would be the case with a Diesel plant where the fuel cost is only one-third to one-sixth of that in a steam plant.

In some localities, securing a supply of water for operating the plant is a problem. A comparison of the requirements of the two types of plants will be of interest to the plant superintendent who is confronted with this problem:

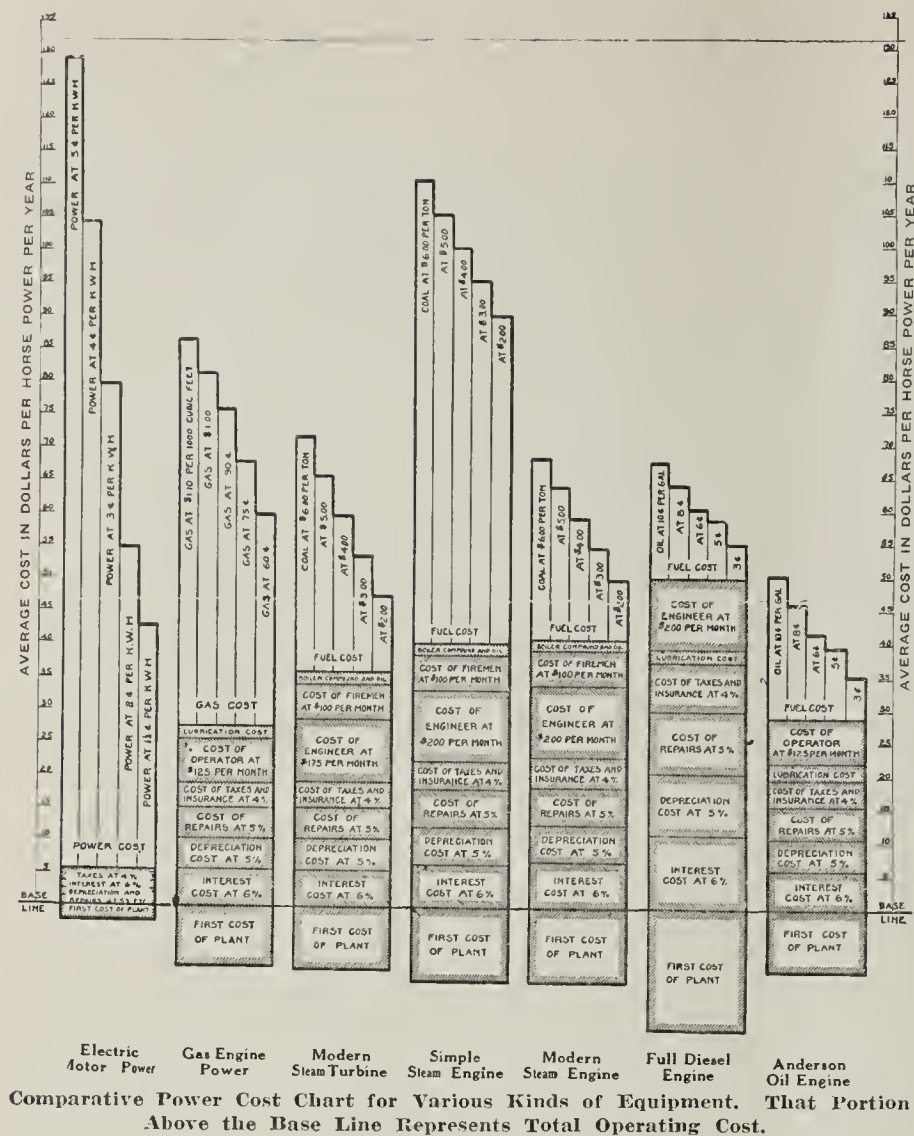
Plant No. 1 will require approximately 17,500 gallons for 24 hours of operation and plant No. 2 approximately 12,500 gallons. With the Diesel engine plant, the water that is used in the manufacture of the brick can be used for jacket water and by circulating this ample supply thru the jackets, the outlet temperature will be well below the point where any solids would be precipitated. The Diesel plant should be credited with a saving of the cost of water for a steam plant.

Uses No Fuel When Not Operating

In brick plants, there are many hours when power is not required but fires are carried in the boilers. In the Diesel



The Generator Side of Two Diesel Engines. This Type of Equipment Has Proven Economical and Efficient for All Sorts of Uses.



Amboy Tile Works, at the annual meeting last December, when he refused positively to accept for another year.

Following an enjoyable dinner, Frank Valentine, M. D. Valentine & Brother Co., made a motion that the meeting be recorded on the minutes of the association as one in recognition of the services of Mr. McHose; this motion was quickly seconded by John Pfeiffer, Henry Maurer & Son Co., and passed by a rising vote. Mr. Pfeiffer then made an appropriate address, commenting upon the work and efforts of Mr. McHose in the years gone by, and presented him with a handsome silver loving cup as an expression of appreciation from the association.

Mr. McHose, unaware of the honor to be accorded him, showed deeply his appreciation. In befitting words he thanked the members for the gift and the spirit which accompanied it, and gave a brief history of the association from its time of inception. He said that the loving cup and the well-wishes that it carried always would be treasured.

President Staudt made a few pertinent remarks regarding the occasion and then presented Mr. McHose with a set of bookstands made from clay that came from the McHose mines.

Following the appointment of a committee to arrange for a summer outing for the association, the meeting was thrown open and it was just a round of social pleasure and good fellowship among the members.

engine plant when there is no power required, the engine can be shut down as it can be placed in operation again in 60 seconds and with the stopping of the engine, the fuel costs stop.

The Diesel engine is supplanting steam power in many industries and the saving in fuel cost alone will pay for the equipment in a few years.

NEW JERSEY CLAY MINERS' MEETING

The New Jersey Clay Miners' and Manufacturers' Association, Perth Amboy, N. J., held its regular summer meeting at the East Jersey Club in that city on Thursday evening, May 24, with a record attendance of members and guests. The affair was in the nature of a social gathering and frolic rather than a business session and was arranged primarily to pay honor and tribute to L. H. McHose, head of the McHose Clay Co., the first and only president in the 13 years of existence of the organization. He was succeeded in this office by August Staudt, president of the Perth

MANGANESE IN THE ARKANSAS OZARKS

Every ton of steel made in the United States requires the use, on an average, of 40 pounds of manganese. The Ozarks of Arkansas furnish a part of that manganese. In times of peace most of the manganese ore used in the United States is imported from Brazil, India, and Russia, but during the World War, when imports were curtailed and when ships were busy carrying troops and supplies to Europe, deposits in many states, including Arkansas, produced a considerable part of the much greater quantity of manganese ore then required.

The deposits of manganese ore in the Arkansas Ozarks are described in a recent report of the Department of the Interior issued by the Geological Survey as its Bulletin 734, by Hugh D. Miser. The bulletin is entitled "Deposits of manganese ore in the Batesville district, Arkansas," and it contains a chapter on the mining and preparation of the ores by W. R. Crane, of the Bureau of Mines.

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FREDERICTON, N. B., Nov. 9th, 1922. 192

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FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

AN ADVENTURE IN DISCONTENT

Charles F. Binns

Editor's Note.—The following article was written by Professor Charles F. Binns of the New York State School of Clay-Working and Ceramics, Alfred, and presented in the form of an address before the United States Potters Association on the occasion of that body's annual meeting in April. In his talk Professor Binns holds forth some hope that American ware will some day hold the same position in the eyes of the public as does imported ware. He also points the way along which the American manufacturer should work to accomplish that end.

IF YOU WILL ALLOW ME, I will introduce myself, not from any personal feeling, but that you may understand from what point of view I approach this question. My father was managing director of the Royal Worcester Porcelain Works from 1851 to 1896. I entered the factory in 1872 when I was less than 15 years of age. During the time in which I was connected with this manufactory I had a share in the management of every department in the plant and in the wholesale office in London. In the fall of 1897, I came over here and undertook work in Trenton. I did not succeed there very well. In fact there were and perhaps are several men there who thought me an absolute failure, but at any rate, I acquired an experience of American methods of manufacture which has been to me beyond price.

Thought About Problem 20 Years

In the spring of 1900, I was invited to take charge of the ceramic school about to be established at Alfred University and I moved my family there the same summer. Since then my work has been of a diversified nature as, of course, the school has covered every part of the field of ceramics and yet my devotion to my first love has never wavered. I always have been and always will be a whiteware man.

The problem which is the first cause of my being here today is one which has been on my mind for 20 years. Almost immediately upon taking up my present work I began to receive letters and to be requested to answer questions like these: "Is American table ware better or worse than English or French?" "Can we make as good wares as are made in Europe?" "Have we any clay which will make fine china?" "Why is there so much fine ware imported?" These questions are the foundation of our problem. Of course, I could not answer them; nor can you, but we can discuss them, I hope, with profit.

The terms "better" and "good" are relative, but I want to limit the discussion to appearance of the property of giving

pleasure to the observer. Obviously this includes practically every aspect of whitewares except strength. The form or shape, the substance or thickness, the color and translucency or opacity of the body, the texture and brilliance of the glaze, the design and color of the decorative treatment; no one of these can be ignored when judging appearance. The question then is how far are we prepared to go in adjusting these properties or any of them to meet an exacting taste? But behind this is the other question, at once both fundamental and dominant, do we wish to meet such a requirement? If you say "no" then I fear that our discussion will be fruitless, but I believe that you are interested at least to the extent of admitting that we ought to understand our own position and to be prepared to maintain it. I do not want you to think that I am assuming a critical or a superior attitude.

Wonderful Advances Made

You know very much more than I do of the risks and difficulties of manufacture and I certainly will not attempt to make light of these. There have been wonderful advances made in the last 20 years, chiefly, it may be admitted, in increased speed of production, uniformity of product, and the lowering of losses. The improvement of the quality of the wares has been largely in the use of a wider range of materials, more careful preparation and a higher kiln temperature. These have reached their logical issue in the manufacture of china, and this, with the exception of a small production of Belleek, is as far as we have gone.

You are, of course, familiar with the stores in New York which make a specialty of fine table wares and, equally, of course, you know that American wares are not shown in the windows of these stores. I have known these store people to say that they would not handle the domestic product at any price but perhaps that sentiment is ancient history.

Why Imported Ware Is Popular

Let us inquire here what the qualities are which make imported wares acceptable to that part of the public which can afford to pay the price. Neglecting the shape for the moment, we find their wares of pure translucent white. The quality of translucence should not be ignored. A piece of hard porcelain even if it were too thick to possess actual translucence would still glow with the brilliance which belongs to translucency. The light partially penetrates the substance and is not reflected merely from the surface. It is the difference between a marble bust and a plaster cast. This constitutes a definite appeal to the eye and is the foundation of the appreciation of porcelain. I use the term porcelain, of course, in the European sense.

These foreign wares belong to two groups. There is the well-known porcelain of Limoges, often called French china, the ware with a hard feldspar glaze, and there is the English bone china, of which the glaze is rather softer than that used on American china but of similar composition. The French ware lends itself best to delicate underglaze treatment. Brilliant colors are not often seen and the overglaze decorations do not fuse well into the hard glaze. Rich gilding, often too rich, is extensively used. The English

china is the supreme ware for rich coloring. The broad bands, groundlaid over the glaze and fired hard, form a distinctive treatment that is exclusive. All the English overglaze colors are brilliant because the soft glaze assimilates them well. There is also rich gilding on the English wares.

Gold Decorations Come from 18th Century

I am not defending or advocating this kind of treatment. From the point of view of design it often leaves much to be desired, but it is the accepted tradition for the decoration of the table. As a matter of fact, the method of treating expensive plates in gold and color belongs to the 18th Century, which was probably the most debased period of art in history. The style was brought to perfection under the kings of France and it has held its own, with variations, ever since.

It should be possible for us to originate and carry thru a style of decoration more in keeping with the sound principles of design and with the demands of modern taste. There have been very few epoch making departures in the artistic treatment of ceramic wares and none that has been especially adapted to the wares of the table. The dates that I have in mind are only approximate but I cite first that ivory finish of the Royal Worcester Works from 1880 to 1895 and then in order the Rookwood matt glaze, 1890, the Copenhagen underglaze painting, 1893, and the Rookwood vellum, 1903. Each of these treatments was the expression of an idea which at the time was entirely new and each, except perhaps the last named, has been honored by innumerable imitators. But there has been no distinctive novelty of treatment for table wares unless an exception be made in the case of the lithographic or decalcomania print which has been a development rather than a departure.

Printed Decorations Can Be Improved

I believe it would be possible to refine and improve our ordinary printed decorations, copper plate or lithographic or both, by sound design and careful execution, supplementing the prints by hand work if needed until there should be established a distinctive style of American table wares. If the porcelain makers of Copenhagen could by the use of their characteristic underglaze treatment create a vogue as they undoubtedly did, it is thereby proved that the public does not call for brilliant colors as the only possible means of decoration.

No Hope for U. S. China

I said in the paper which is supposed to have been the origin of this talk that "even without any change in body, glaze or fire a great deal could be done" in the direction of meeting foreign competition, but I now believe that the statement was not a courageous one. I scarcely believed it myself when I said it. But what can we do? Of course, our semi-porcelain and vitreous wares will not serve, however fine the decoration, but is there no hope in china? To be quite candid, I do not think there is. That is to say, I do not believe that the very best of our chinas, decorated with the most satisfactory designs will ever be shown by Collamore and Tiffany as the equal of Limoges hard porcelain or Staffordshire bone china. I know that this is a bold thing to say and you are welcome to an opposite opinion, but if we are to reach any result we must handle the situation without gloves and express our views without fear or favor.

Snow White Body in Demand

It seems to be unfair that we should be thus condemned to an inferior position when we know that our wares are the strongest in the world. The point, of course, is that these fashionable plates and cups are not bought for strength but simply and solely for appearance.

As I said at the first, we are not discussing strength be-

cause it has no bearing on the case. We know that the demand for a snow white body is artificial but so is the regulation dress suit, and we cannot get away from either the one or the other.

Hesitate to Change Product

I know quite well that when the case is thus presented a good many manufacturers cease to be interested. Their position is that under no circumstances could they be persuaded to change to the extent of manufacturing a different product. No blame is to be attached to them. There is no obligation involved but I recall the fact that in the last few years, more than one conservative manufacturer has changed over from earthenware to china. No one of us likes to be left behind, and I am quite sure that if some other line than the one being produced could be shown to be a financial success everybody would want to run for a place.

Bone China Will Be Solution

At the present moment there are the two possibilities of the French and the English methods. I do not think we can school ourselves into making hard porcelain. The methods are so radically different from our own that it would take years to compete successfully with those who have wrought in this way for generations. There remains then the production of bone china. To be frank with you, I am not very enthusiastic about this either, albeit that I was born and raised on bone china myself. I know it so well that I am afraid of it, and yet I think it is at present our only hope. It can be manufactured by our regular processes and with the inventiveness which characterizes our people I am quite sure that improved methods would soon be thought out. The preparation of the body is different because I do not think bone ash can be bought which is ground finely enough for use and, of course, the body has a very low plasticity.

New Materials Being Used

Beyond this there is only the possibility of the construction of a new body and the use of new ingredients. I had an inquiry a few months ago for a body without any alkali content which, of course, means without feldspar. Spark plugs are now being made of a porcelain body which contains such substances as beryl and steatite, all of which goes to show that the resources of materials have not been exhausted. We should be constantly on the watch for new possibilities.

I have long believed that it would be possible in any successful manufactory to create a department, small but sufficiently large to be practical, for the express purpose of producing special wares. It should be acknowledged at the outset that this enterprise would not pay. There would be no financial return at all for some time, but we are building for the future. Let us think first in terms of bone china. If the regular biscuit kilns fire as high as Cone 9, a special kiln would not be necessary, but Cone 10 is better. For the glaze fire most of our regular kilns are too high. The china glaze should not receive more than a Cone 4 fire. Of course, a glaze for Cone 6 can be made, but the china will stand to lose one of its best features. The body will have to be adjusted to terms of feldspar and flint. Cornwall stone is probably not available in its best quality. The china clay must be of the finest. English kaolins are so extensively used that no difficulty will be found here, but Dillsboro kaolin can be used if available in uniform quality. Good bone ash can be obtained but a close watch must be kept upon the quality because there is no large market for the best. Inasmuch as the English use American bone it should be possible for us to obtain the same.

Best Ware Not Made at High Speed

Close attention to grinding is imperative. It is an open question whether the mix should be ground in its completed composition. English china clay will not need grinding, but Dillsboro clay must be ground. This is one of the matters for experiment. I have not closely followed the English method of potting since the general use of machines. In my time over there the ware was made with hand tools. I can scarcely think, however, that this method still obtains. Probably in every plant a good working potter can be found who will take pride in turning out good work. Let it be understood from the beginning that the best wares cannot be made on the high speed plan. Especially at first the operations will be slow and above all things careful. This applies also to kiln placing. I do not know whether or not the sanding machine could be applied to bone china plates and saucers. It could at least be tried. At the Worcester Works the plates were placed one by one, each on a bed of flint and even then a large number of them had to be returned to the kiln for straightening. In our general wares we have managed to side step this difficulty by making plates with waved or fluted edges, but one of the beauties of a fine plate is the clear straight edge. No doubt you have seen the English china plates set three dozen high without a fraction of difference either in diameter or in the space between the edges. When we can accomplish this we can make bone china and can make it pay.

Care in Setting

Placing the glazed ware must receive close attention. Bone china is not pinned. The pin marks would be fatal even if the ware would hang safely. A large equipment of setters and angles is necessary. This plan is probably capable of improvement because there is always a point of contact on the foot of the plate and this leads to one of the greatest evils of the ware, blackening in the decorating kiln. I have known expensive plates to receive a coat of solid gold on the foot to hide the black. Probably a special decorating kiln will be necessary for our experimental plan. I have the impression that the decorating kilns in this country are brought to a lower temperature than in Europe. I have no positive information but only judge from the quality of the colors. If this is not a fact then, of course, the regular decorating kilns can be used. The only other point is that if ground-laid bands of crimson, rose or turquoise are used, they must be fired harder than painting or printing colors or gold.

Skillful Designer Necessary

Now about the decoration. I have already indicated that I do not want to adhere to the methods or designs of the past. A skillful designer must be engaged and put in charge of decorations. He must have at his disposal one or two well trained decorators who are able to use both gold and color.

It will be necessary to experiment largely in the actual wares and the ideal must be first to produce fine things and then to reduce the cost if possible without impairing the quality. At first, it will not be necessary to do more than make and decorate plates—the eight or nine-inch plate which is richly decorated as a service plate. This will afford abundant exercise both in workmanship and design. Of each selected design only a single sample need be finished unless, of course, the pattern is to be shown in more than one city at the same time. These expensive plates are finished to order, but there must be some white stock upon which to draw. One source of expense and loss is the accumulation of seconds. For the fine decorations at which we are aiming only the very best plates can be used. Not only straight but free from blemish of any kind. This means a large quantity of pieces which because of some defect are

rejected and the market for them is small. It will not do to lower the standard nor can the seconds be sold in competition with the best.

Convincing the Buyers

Our next problem will be to convince the buyers and department managers of the exclusive stores that we have something rare and valuable. We must not look for large orders or repeats nor must we approach the department stores. We are catering to the wealthy patron who buys only on Fifth Avenue. When we have captured New York it will be time enough to attack Philadelphia and Boston. When we have these roped and tied, Chicago and San Francisco will be waiting on our doorstep for a chance to buy.

I have little or no experience as a salesman and I scarcely know how a New York buyer should be approached. I am sure that he will be hard to convince and that nothing but quality will appeal to him. I fear that he will share the prejudice which exists in favor of imported wares. He borrows this from his customers who are wise in the styles of European manufacture.

Customers Know What They Want

Selling china is no longer the simple procedure that it once was. Not so very long ago a dealer could stock his store through a single jobbing house and his customers looked and selected and bought what they liked. Now-a-days every woman knows the different makes. You may be surprised to hear that women's clubs all over the country are studying pottery and porcelain from every point of view. I know this because I am continually in receipt of letters asking for books and other sources of information. These women are, of course, the purchasers of our wares. Not content with looking over the stock they ask for Haviland or Royal Crown Derby. They may not know these when they see them, but that makes no difference. The charm is in the name. We must make our names and trade marks so well known that the people will ask for them and accept no substitute. When this is brought about, the buyers will be forced to buy.

Samples Must Be Perfect

Perhaps I have run ahead of my story. We do not expect to appeal to the general public for quite a long while yet, but the general principle is the same. If we can place some sample plates in an exclusive store and can have them of such a quality that the educated and discriminating woman will ask, "What make is that?" we shall have traveled a long way and our goal will be almost in sight. The pattern and finish must afford no loophole for the sales person to say, apologetically, "Oh, that is just a trial plate of one of the local firms; they want to see how it compares with the imported wares, but you can see for yourself," and so forth. Our wares must speak for themselves and must be of such a character and quality that no sales person can conceal their beauty or damn them with faint praise.

Make Vision Come True

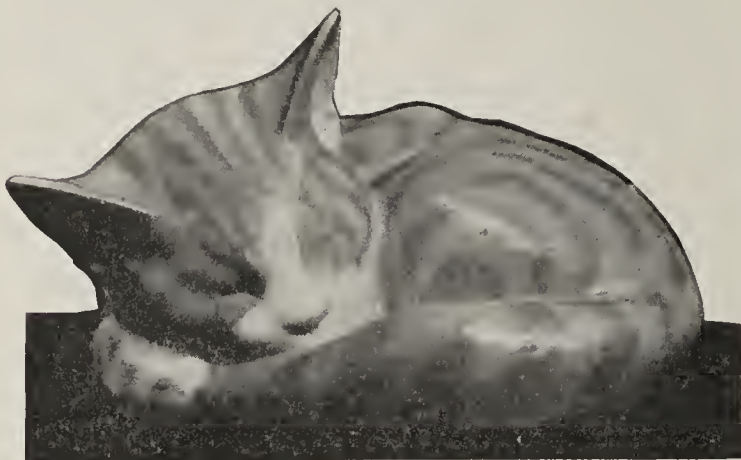
I have tried to unfold to you the vision that has been for a long time before my eyes. Is it only a vision? I think not for I am persuaded that it will come to pass. Perhaps not in the way I have indicated, but if not, then in some other way. I hope it will come soon for I want to see it and I want you who are growing old with me to see it. We have watched the gradual development of our work from the time when a reputable merchant would set up on a conspicuous placard, "No American ware sold here," to the present perfection of our hotel china. May we not hope for the further advance, undertaken in faith and at some sacrifice when our cups and plates shall adorn the tables of the wealthy, set there as fit companions of fine silver and dainty linen, not because they are cheap or abundant, but

because of their beauty, and furthermore that we shall have the satisfaction of knowing that we have convinced the sceptics that American potters will not accept defeat in any branch of their art from any people on this round world?

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MY COPENHAGEN CAT

This little gem, under the above title, was clipped from the New York Evening Sun of April 20, 1923, by E. V. Eskesen,



A Beautiful Piece of Royal Copenhagen Porcelain.

president of the Royal Copenhagen Porcelain & Danish Arts, New York City. It refers to a piece of work manufactured at the Royal Copenhagen Porcelain Works.

MY COPENHAGEN CAT

Calm and reposeful all day long she lies
Upon my dresser; sleep has closed her eyes;
Her nose is buried in her milk-white fur;
All day she sleeps, with neither twitch nor stir.

When I am tired, restless, full of nerves,
I look with envy at her peaceful curves.
I wish that I could just relax like that
And sleep as sweetly as my CHINA cat.

—Elisa Van Wyck.

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ESKESEN HEADS TERRA COTTA MEN

At the annual meeting of the National Terra Cotta Society at Atlantic City, N. J., April 21, 1923, E. V. Eskesen, president of the New Jersey Terra Cotta Co., was elected president of the Society for the ensuing year. The remaining officers are: O. W. Ketcham, first vice-president; Adolph Hottinger, second vice-president; Walter Geer, Jr., treasurer, and F. S. Laurence, executive secretary.

Mr. Eskesen was knighted by the King of Denmark, April 30, 1923, being decorated with the Order of Danebrog in recognition of his services in promoting the common interests of the Danish-American peoples, especially in the interchange of university scholarships, and so forth, between the two countries.

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TO BUILD POTTERY IN DALLAS

A large pottery works will be erected soon at Love Field, five miles south of Dallas, by the Dallas (Tex.) Pottery Co., according to Taylor Jackson, manager of that company. The cost will be approximately \$75,000; 7½ acres and a large factory building have been purchased and machinery is being shipped from New York. According to Mr. Jackson, crockery and pottery of a very high grade will be turned out, beginning the latter part of August. Unless a better field is developed nearer Dallas, clay to be used in the new pottery works

will be shipped from East Texas. For the present, the plant will attempt to handle crockery only, but will go to kitchen and hotel ware later on. Texas now manufactures only about 50 per cent. of the state's consumption, said Mr. Jackson, and it is the plan of the new company to make this other 50 per cent., as well as furnish the entire southwest. The company has not yet been incorporated, nor have its officials been named.

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ZWERMANN ENLARGING PLANT

The capacity of the Zwermann Co. of Robinson, Ill., will be more than doubled in the near future. A contract was awarded recently for the erection of a large building 432 feet long and 96 feet wide. The building will house two large single tunnel kilns, which will run the length of the building. They will be built by the Russell Engineering Co. of St. Louis. The first of these kilns will probably be completed by August.

The company at present employs about 100 men and this number will be increased to between 200 and 300 men when the new unit is operating. The company manufactures vitreous china sanitary ware and its present capacity is about 280 pieces per day. The capacity of each of the new kilns will be 180 pieces, which will make a total capacity when the kilns are completed, of 640 pieces per day.

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DEATH TAKES W. D. FRERICHS

William D. Frerichs, Tottenville, Staten Island, N. Y., one of the organizers of the Atlantic Terra Cotta Co., died at his residence on Amboy Road, May 17, at the age of 77 years. He was one of the pioneers in the American terra cotta industry, becoming connected with the Perth Amboy (N. J.) Terra Cotta Co., in 1877, about the time of its reorganization and then the only such company in this line in this country.

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C. A. MAY RECOVERING FROM ILLNESS

Charles A. May, head of the Maddock Pottery, Lamberton Works, Trenton, N. J., is recovering from a serious illness and expects to return to the plant at an early date.

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HOPEWELL TO REBUILD

The Hopewell (Va.) China Co. has plans under way for the rebuilding of the portion of its plant recently destroyed by fire with loss approximating \$100,000. The decorating kiln shed suffered the greatest loss.

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EMPIRE TO MAKE SANITARY WARE

The Empire Floor & Wall Tile Co., Metuchen, N. J., recently reorganized, has resumed operations at its plant on Middlesex Avenue and will devote production to tile for sanitary service. Improvements have been made in the machinery and other work of this character is planned to bring the plant up to the highest point of efficiency. Employment is being given to about 40 men and as soon as orders warrant, additions will be made in the working force. Roy Schweiker is plant superintendent.

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C. OF C. VISITS TERRA COTTA COMPANY

The live wire group of the Kansas City (Kan.) Chamber of Commerce recently made an inspection of the plant of the Western Terra Cotta Co. in that city, following the regular weekly noonday luncheon of the chamber. This is part of the program that has been instituted by C. B. Hewlett, Chamber of Commerce, to get acquainted with the local industries.

KAOLIN DEPOSIT FOUND IN WASHINGTON

A deposit of kaolin, underlaid by ochre and sienna, has been found near Deer Park, Wash., it is reported. The deposit is at least 100 acres in extent, it has been determined by over 100 borings made by the American Ochre Co. of Spokane. The kaolin deposit is eight feet in thickness and lies seven feet below the surface. The ochre deposit is immediately beneath the kaolin and is six feet thru, below which is found six feet of sienna. Financing plans are under way at the present time to develop the deposits. Abundant uses exist in the Pacific Northwest for the kaolin products. Local capital is being interested in the development. A plant is planned which will employ from 35 to 40 men and will have a payroll of about \$50,000 a year.

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EXHIBITS GARDEN POTTERY

A unique and attractive display of yellow garden pottery, in a wide variety of designs and for many uses, is on exhibit at the show room of the Standard Mantel & Tile Co., Toledo, Ohio. It is used in gardens, sun rooms, conservatories, and so forth. This company does considerable business in the laying of tile floors for kitchens, hallways, lobbies, and stores and installing tile bathrooms. Besides constructing mantels of brick and tile in many patterns, the Standard Mantel & Tile Co. carries a stock of hand-wrought andirons, screens, and grates for gas, and so forth.

* * *

COLUMBUS "Y" TEACHING TILE SETTING

In addition to its various other courses, it has been learned that the Y. M. C. A. of Columbus, Ohio, is including a class in tile setting. The results of this class will without a doubt be greatly appreciated by the building trades since lack of expert tile setters has become so desperate that contractors are exchanging men in this line and even importing them from long distances. Charles G. Brooks, tile contractor, will be in charge, assisted by Anson Nelson, who has had 35 years' experience in this line.

* * *

FORM \$2,500,000 CHINA COMPANY

The Rowe China Co. has been organized at Los Angeles for the manufacture of whiteware. The first unit of the factory of brick and steel construction will contain seven kilns. The ultimate cost will approximate \$2,500,000.

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ALLIANCE PLANT BUILDING ADDITION

The Alliance (Ohio) Vitreous China Co., property of the George H. Bowman Co., of Cleveland, is building an addition to take care of an increasing business in hotel china and bathroom accessories.

* * *

BUILD TWO-KILN STONEWARE PLANT

The Burley Clay Products Co., Zanesville, Ohio, has been incorporated for \$150,000 by S. V. Burley, Z. W. Burley, Mrs. Florence Burley, John G. Burley and Emmett E. Burley, all well known pottery owners in the Crooksville district and also interested in the American Clay Products Company of Zanesville. The plant of the new company is located near South Zanesville and is a two-kiln factory. It was the intention when construction work was started to operate a stoneware plant. The factory has now practically been completed and ready for operation.

Elijah Ray, Jr., who was active in the erection work at the new plant, has severed his connection with it, having sold his interests to the Burleys.

* * *

BUILDING THREE NEW KILNS

Three additional kilns have been contracted for by the Shenango China Co., New Castle, Pa. With these in opera-

tion this company will have 16 kilns under fire and will give employment to an additional 100 workers, it is said. Some months ago the company increased the capacity of the decorating department because of the increased demand for the hotel china line.

* * *

FORM COMPANY AT MECHANICSBURG, PA.

The Moore Brick Co., Mechanicsburg, Pa., has been formed under Delaware laws with capital of \$90,000, to operate a local plant for the manufacture of brick, tile and kindred products. The company is headed by Clarence Z. Moore, Mechanicsburg; A. W. Heckert, Harrisburg, Pa., and Clarence Hunafer. It is represented by the Corporation Service Co., Equitable Building, Wilmington, Del.

* * *

HOPEWELL SUFFERS FIRE LOSS

The Hopewell China Corp., Petersburg, Va., recently experienced a loss of property amounting to \$100,000, the cause of which was by fire of unknown origin. The damage done was mainly to finished china that was ready for shipment. The loss is fully covered by insurance. Several departments will be forced to shut down on account of the fire.

* * *

UNITED POTTERIES INCORPORATES

United Potteries Co., Canton, Ohio, is incorporating with a capital stock of \$50,000. The incorporators are: M. Safranek, Robert H. Everhard, F. B. Melchior, A. C. Wack and A. P. Newhouse.

* * *

GEORGIA CERAMIC SCHOOL ASSURED

Establishment of a School of Ceramic Engineering at the Georgia School of Technology in Atlanta, to which reference has previously been made in Brick and Clay Record, has now become an assured fact, according to B. Mifflin Hood, president of the B. Mifflin Hood Brick Co., of Atlanta, and general chairman of the committee in charge of the promotion work. Mr. Hood advises Brick and Clay Record that the response this project has met with thruout the state and the Southeast has been even more generous than anticipated, and that already contributions in money, materials and supplies amounting to considerably more than half of the total required have been secured.

Mr. Hood states that the present plans will require an investment of approximately \$25,000 to \$26,000 to build and equip the first unit of the school and maintain it for one year.

According to present plans of the organizers this school is to cover ceramic engineering in a thoro and efficient manner so that graduates may at once enter this field of work as recognized experts.

While it is not as yet definitely known when actual work on the school will get under way, the committee proposes to push the campaign over the state at once, and sub-committees have been named in various towns and cities to handle the campaign locally. It appears certain that the needed support will be fully obtained within the next two or three months, and that actual construction of the first unit of the school—the building estimated to cost about \$18,000—will get under way before the end of the year.

* * *

TO BUILD NEW PLANT AT ATHENS

The Athens (Tex.) Pottery Co. has under consideration three sites for the erection of a pottery plant in Dallas, Tex. It is contemplated to build a factory of the size or larger than the Fort Worth plant, which is the headquarters of the concern. As soon as the location is decided upon construction will start. The new Dallas plant will manufacture a complete line of whiteware for use in hotels and restaurants.

Management and Superintendence

PERMANENT BRIDGE OVER DEPRESSED TRACK

Here is a good idea for a "bridge" or runway across a cut or railroad track. This scheme will be appreciated by those who have experienced the annoyance of continually having to look for planks of the proper length to span the track. The runway was designed by the yard foreman of the Everhard Brick Co., Massillon, Ohio. It is nothing more than planks which turn on a shaft, enabling them to be swung out of the way when any switching is done.

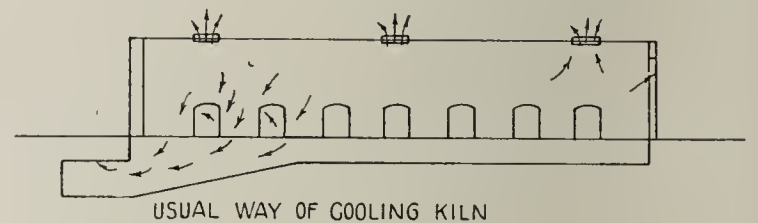
The runway was built 17 feet 6 inches long and 24 inches wide of two inch lumber. As shown in the drawing the planks forming the bridge are braced about in the center by a 2"x4" block and by a 4"x6" block towards the left. Two 5/8 inch rods are run, one from each end of these blocks for further bracing. The shaft on which the run swings is 2 7/8 inches thick and is fastened to the bottom of the 4"x6" block previously mentioned by means of "U" bolts. A 1,135 pound weight has been fastened to the end of the runway, making the operation very simple.

To hold the runway in place a flat piece of iron, 5/8"x2"x32", is shoved under that part of it to which the weight is attached. When it is desired to lift it out of the way of the freight cars, all that is necessary is to draw out the piece of iron and the weight will lift the runway into a perpendicular position.

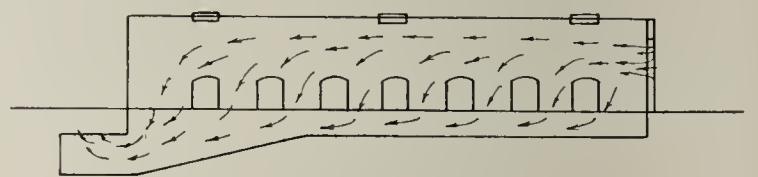
To bridge the gap between the runway and the sides of the cut a 24 inch square steel plate is used. This will increase the life of the wood runway as it eliminates the constant bumping to which the planks would be subjected. With this same idea in view the foreman placed an eight inch steel plate in the center which runs the entire length of the runway and makes wheeling considerably easier.

IMPROVED KILN COOLING METHOD

An improved method of cooling a rectangular down-draft kiln and of drawing the heat into a waste heat dryer, has been devised by the Lock Haven (Pa.) Brick & Tile Co., according to W. W. Swengel, superintendent. Mr. Swengel



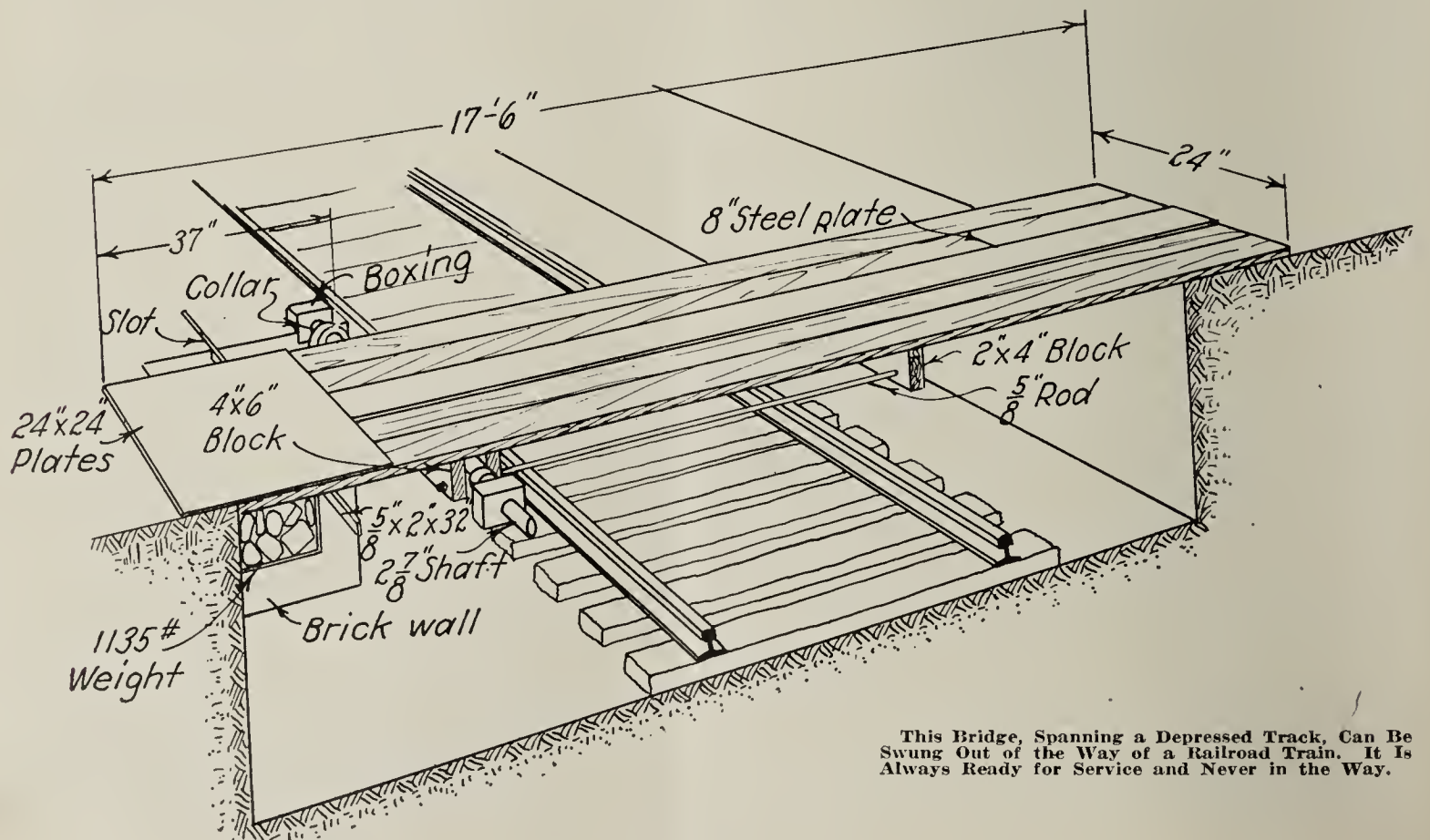
USUAL WAY OF COOLING KILN



IMPROVED METHOD OF COOLING

says: "The usual method of cooling a rectangular kiln on a building brick plant which uses the heat for drying the brick and which draws off the heat by means of a fan, is to allow the fires to burn out until the sulphur has been burned off and then opening the port holes in the crown of the kiln and fire boxes. This method is not efficient because much of the best heat of the kiln is lost.

"When the heat is turned into the main air duct leading to the dryer, the air short circuits and draws only from the nearest fire box to the main air duct and not thru the entire



This Bridge, Spanning a Depressed Track, Can Be Swung Out of the Way of a Railroad Train. It Is Always Ready for Service and Never in the Way.

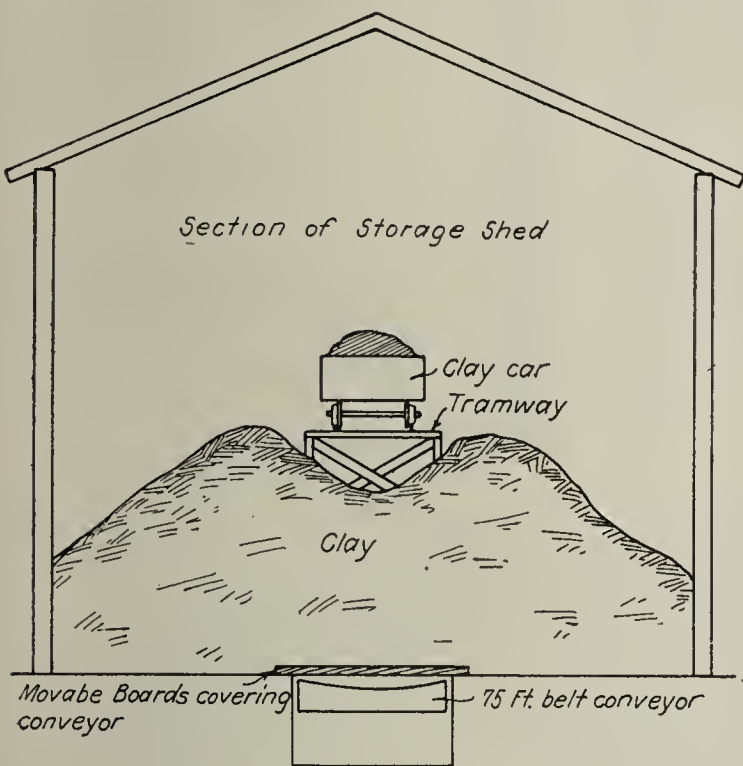
kiln. Therefore, only a part of the heat is delivered to the dryer and the rest is lost thru the port holes and by radiation. A longer time is also required to cool the kiln. The way in which this works is illustrated in the top part of the sketch.

"An improved method of cooling is shown at the bottom of the sketch. Here the port holes are kept closed, fires are pulled and after the sulphur is off the fire boxes are sealed up and the heat turned into the air duct leading to the dryer. The wickets or doors on the drawing end (opposite from main air duct) are partly opened admitting air to the kiln from this point. The advantages to be gained in cooling the kiln by the latter method are, that about twice as much air will be supplied to the dryer and that it will enable the kiln to be cooled in about two days less time. As a result, the capacity of the plant is increased without very much expense which of course means greater profits to the plants adopting this method."

* * *

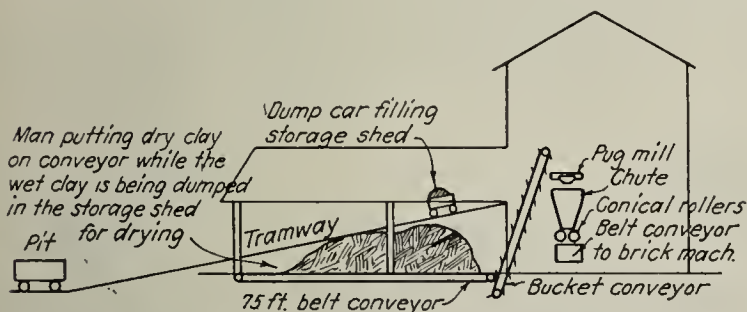
A GOOD CLAY STORAGE

Brick and Clay Record is indebted to J. A. Schindler of the Marshfield (Wis.) Brick & Tile Co. for the idea of a clay storage here pictured and described. Mr. Schindler says: "Our clay has always been too wet, especially during



Section Thru Clay Storage Showing Method by Which Clay Is Taken Out.

rainy weather, and we have come to the conclusion that a storage shed will eliminate this trouble. The storage shed we are planning to build, will hold a 30 day supply of clay. The sketch will show how the storage operates. In order



Plan of Storage and Arrangement of Clay Machinery.

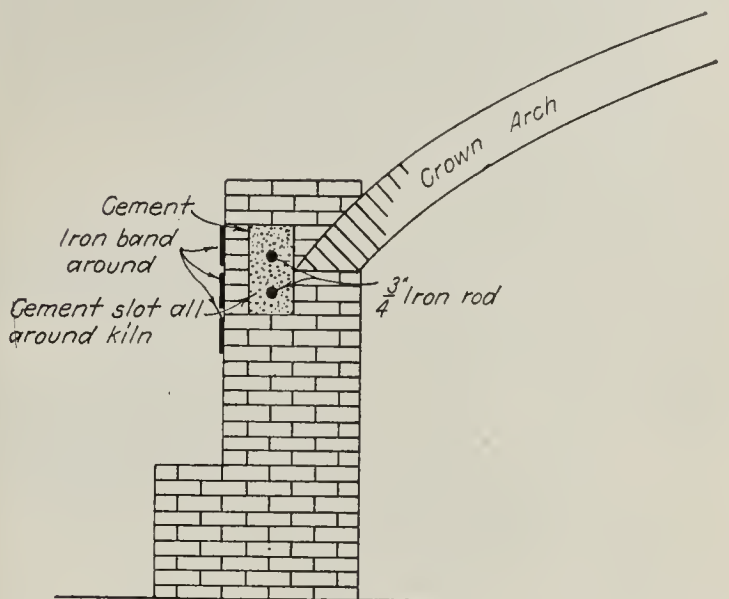
that dry clay will be available at all times, we have a man in the storage who rakes the dry clay onto the conveyor. The wet clay is dumped into the storage and given an opportunity to dry.

"Operation is very simple; the belt conveyor beneath the floor is covered with loose boards and clay is fed to the conveyor simply by removing these boards. One man can supply enough clay on the conveyor to make 30,000 brick daily."

* * *

REINFORCING KILN WALLS

Here is an idea which will at once strike the clay products manufacturer as being practical and valuable. It is a simple and permanent way of reinforcing the kiln walls to withstand the thrust of the kiln crown. This idea has been developed by F. Clinton Jarboe of Takoma Park, Washington, D. C.



Good Idea for Kiln Wall Reinforcing.

The sketch shows at once what the idea is. It is simply a reinforced concrete band running all around the kiln inside the wall and directly behind the crown arch. It, therefore, acts in the nature of a skewback. The idea is very simple to install. All that it is necessary to do when building the kiln is to omit one course of brick all around the kiln for the required depth. The concrete is then poured directly into this slot. While it is still wet, steel rods to serve as reinforcement are imbedded in it.

* * *

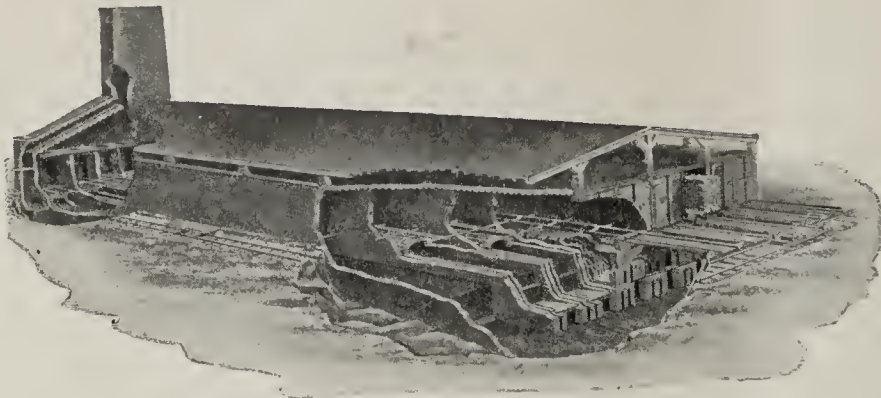
THREE GOOD PLANT BETTERMENT IDEAS

W. W. Swengel, superintendent of the Lock Haven (Pa.) Brick & Tile Co., who contributed the excellent idea on cooling a rectangular kiln, which is printed here, has several other very fine ideas. One of these is a scheme to prevent oil from leaking thru the dies. Mr. Swengel says: "Plants using oil dies, often have been troubled with the dies leaking oil, thereby interfering with the proper lubrication of the clay column passing thru the die. This leakage is caused by the gasket and valve ring not holding against the pressure of the oil. To stop this leakage, use a little litharge and glycerine (obtained at drug store) and apply it to both sides of the gasket. Allow the mixture to dry for about five or six hours and all leakages will be stopped.

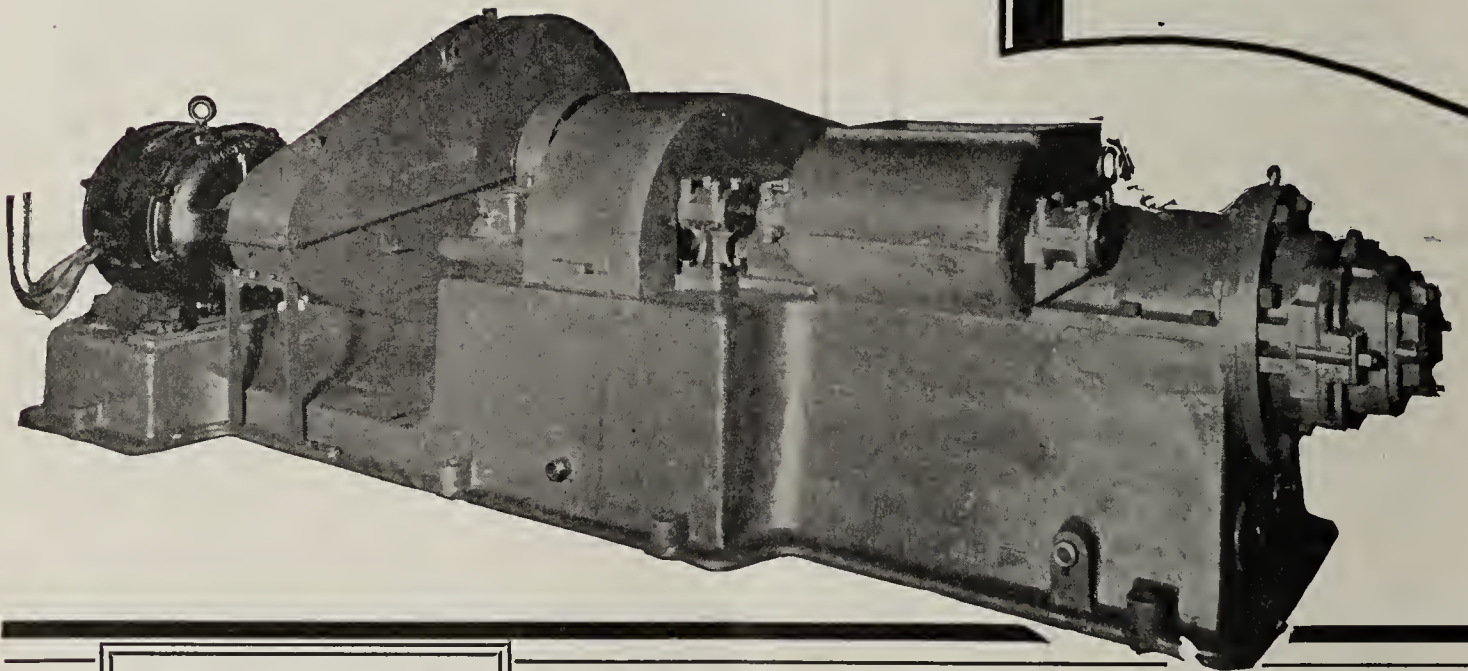
If any manufacturer is troubled with serious lamination of the clay column, Mr. Swengel says: "It has been found beneficial to drill a hole thru a short piece of 2 7/16 inch shaft probably six or eight inches long, and bolting this piece to the front end of the auger extending it into the die. This will retard the flow and pressure of the center of the column.

Another little kink which will be found helpful in stopping leaks in a cement dryer roof, has been contributed by Mr. Swengel. He says, "Place a strip of roofing paper over the crack but cement only the edges of the paper. This will allow it to expand and contract with the cement roof without breaking the paper."

Equipment Assuring E



228-229-230



YOUR entire confidence can be placed in our equipment a little bit ahead of the competition in like manner in the shop.

There isn't any other equipment in the world as workmanlike manner as our equipment. Our Mill, and our new 10 ft. and 9 ft.

International Metallic Radiator. Our equipment 250 lbs. of coal per thousand bricks. It is all over this country and

International Dryer Cars and

INTERNATIONAL

NEW YORK

ENGINEERS
and
DESIGNERS
of
COMPLETE
CLAY PRODUCTS
PLANTS

International

omy in Plant Operation

ced in that machinery which is just
in design—then built in a workman-

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ce base augers—the Type 350 Pug
independent muller construction.

drying building brick on 200 lbs. to
are on from 80 lbs. to 100 lbs. per

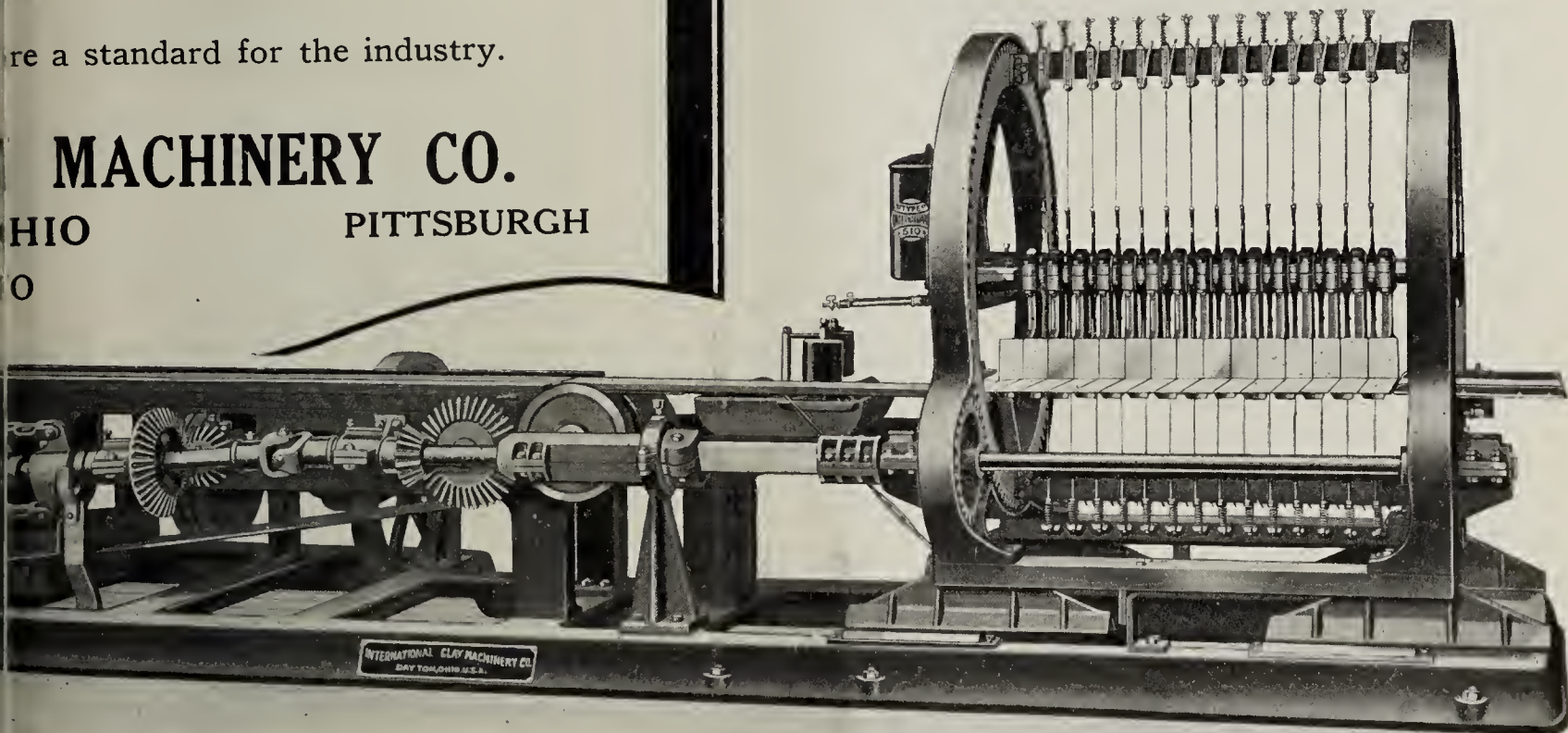
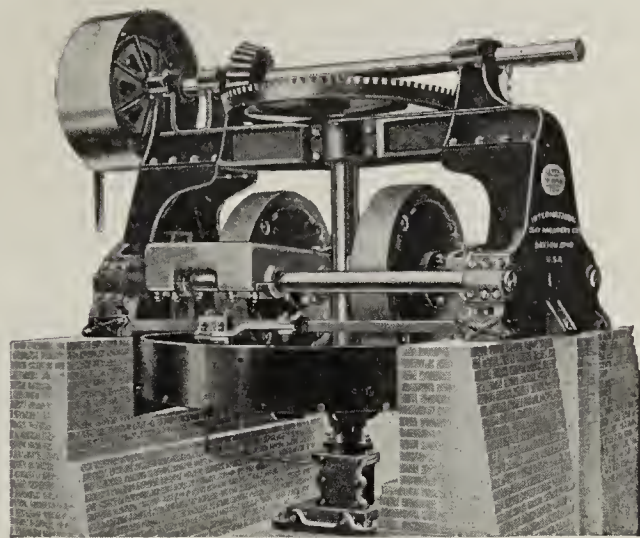
re a standard for the industry.

MACHINERY CO.

HIO

PITTSBURGH

O



**EQUIPMENT *for* MANUFACTURING
CLAY PRODUCTS—POTTERY
and GENERAL WARE**

Current Prices of Common Building Brick, Six Inch Drain Tile and Hollow Building Tile

SINCE the last publication of this list of prices two months ago there has been a marked tendency upward in the price of both common brick and hollow tile. This is, of course, only natural in view of the tremendous demand which the building industry has made on these products. Everywhere clay plants have had to raise the wages of labor to secure and hold the necessary number of men for capacity operations.

The average price of common brick in the cities listed below at this time is \$19.45 which is \$1.05 higher than the average recorded two months ago. 25 cities have changed the price of common brick and only three of these changes were downward. Quebec cut ten cents from the price of its brick, Portland, Ore., \$1.50 and Des Moines, \$1.

Increases were for the most part not very great, but in

some instances, notably in the New England cities, brick prices took a sharp turn upward.

Eight cities recorded a change in the price of six inch drain tile and in every instance the revision was upward. This is an encouraging sign as it indicates that the drain tile market is gradually shaping itself into better condition.

Hollow tile prices are also showing a tendency to increase and in the tabulation below 17 of the 50 cities show a gain in price. The changes were comparatively slight except in two instances—Moline, Ill., and Nashville, Tenn.,—which cities increased the price approximately \$24.00.

The figures in bold face type denote that the price has been changed.

	Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M
Portland, Me. ....	.15		
Boston, Mass.	28.00	.1862	
Providence, R. I.	30.00	.20	
Hartford, Conn.	21.00	.18	
New Haven, Conn.	28.00	.125	
New York City	24.00	...	
Albany, N. Y.	25.00	.165	200.00
Utica, N. Y.	26.00	.118	
Syracuse, N. Y.	20.00	.125	135.00
Oswego, N. Y.	30.00	.125	
Binghamton, N. Y.	24.00	.105	
Elmira, N. Y.	26.00	.10	
Rochester, N. Y.	18.75	.11	
Buffalo, N. Y.	26.00	.12	90.00
Jamestown, N. Y.	25.00	...	110.00
Allenton, Pa.	20.00	...	
Erie, Pa.	21.00	.095	100.00
Philadelphia, Pa.	17.00	...	
Reading, Pa. ....	...	.11	
Pittsburgh, Pa.	18.00	.12	102.00
Scranton, Pa.	25.00	.15	
Newark, N. J.	23.00	.1675	100.00
Paterson, N. J.	23.00	.155	
Trenton, N. J.	20.00	...	
Wilmington, Del.	22.00	...	
Washington, D. C.	19.00	.10	125.00
Baltimore, Md.	19.00	.18	
Norfolk, Va.	18.00	.12	150.00
Richmond, Va.	16.00	.15	
Huntington, W. Va.	16.00	.12	85.00
Fairmont, W. Va.	24.00	.095	95.00
Wheeling, W. Va.	23.00	.09	80.00
Atlanta, Ga.	12.35*	.14	
Miami, Fla.	27.50	...	140.00
Tampa, Fla. ....	...	...
St. Petersburg, Fla.	19.50	...	125.00
Louisville, Ky.	20.00	.07	94.70
Lexington, Ky.	18.00	.12	
Memphis, Tenn.	17.00	.09	110.00
Nashville, Tenn.	15.00	.11	110.50
Birmingham, Ala.	20.00	.11	

	Common Brick Per M	Drain Tile (6") Per Ft.	Hollow Tile (5x8x12) Per M
New Orleans, La.	17.00	.12	
El Paso, Tex.	14.00	...	81.00
Houston, Tex.	15.00	.16	89.00
Dallas, Tex.	10.90	.19	75.00
Little Rock, Ark.	12.50*	.15	
Oklahoma City, Okla.	14.75	.08	75.00
Cincinnati, Ohio ....	...	.09	90.00
Cleveland, Ohio	16.00	.074	90.00
Columbus, Ohio	18.50	.10	
Toledo, Ohio	15.50	.09	90.00
Detroit, Mich.	18.00	.12	99.50
Evansville, Ind.	15.00	.05	72.00
Fort Wayne, Ind.	18.00	.07	80.00
Indianapolis, Ind.	20.00	.10	109.78
South Bend, Ind.	19.00	.08	100.00
Terre Haute, Ind.	18.00	...	
Bloomington, Ill.	20.00	.08	75.00
Chicago, Ill.	12.00	.10	95.18
Moline, Ill.	18.00	.14	82.00
Peoria, Ill.	15.50	.11	58.00
Green Bay, Wis.	18.00	.076	100.00
Milwaukee, Wis.	15.50	.09	97.50
St. Paul, Minn.	16.00	.09	75.50
Davenport, Iowa ....	...	...	65.00
Des Moines, Iowa	16.00	.12	85.00
Sioux City, Iowa	16.50	...	75.00
Kansas City, Mo. ....	...	...
St. Louis, Mo.	14.00	.13	65.00
Lincoln, Neb.	16.50	.09	70.00
Denver, Colo.	14.00	...	85.50
Butte, Mont.	17.00	...	15.00\$
Los Angeles, Calif.	15.00*	.0975@	100.00\$
San Diego, Calif.	14.00	.14	120.00
San Francisco, Calif.	17.00	.065	108.00
Portland, Ore.	17.50	.10	95.00
Seattle, Wash.	15.50	.12	95.00
Cheyenne, Wyo.	18.50	...	
Winnipeg, Man.	18.00	.16	100.00
Toronto, Ont.	18.00	.11	
Halifax, N. S.	21.50	.30	
Quebec, P. Q.	18.65†	.11	90.00

Editor's Note.—The prices of the commodities listed above are reported as delivered on the job, and are, therefore, higher than the plant prices. These prices are obtained from a sister publication, Building Supply News, and are sent to this paper by dealers in the various cities listed. Brick and Clay Record will appreciate any corrections.

*Little Rock, Los Angeles, Atlanta, Dallas, f. o. b. cars.
 \$Los Angeles, Heath tile; Butte, per ton at yard.
 @Drain tile, Los Angeles, f. o. b. factory.
 †Quebec, common brick, f. o. b. sheds.

A Big Live Fact

One car of Fuel Oil—delivered automatically to a Standard Diesel Engine—will produce as much power as Eleven Cars of Coal.

Consider the difference in freight on the extra ten cars.

Consider the shoveling of coal and disposal of the ashes.

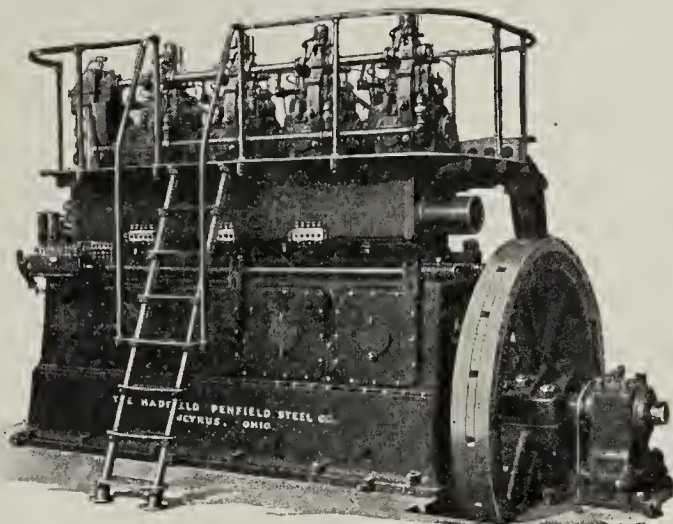
And then there is the saving in room and attendance.

The Clayworker who is interested in money saving and labor saving is interested in the Standard Diesel Engine.

Write for particulars about—

"Diesel Engine Saving in Clay Plants."

The Hadfield-Penfield Steel Co.
Bucyrus, Ohio



200 HORSEPOWER ENGINE



**Wearing Parts
of
Manganese
Steel**

Clay Plant Repairs are saved with "Era" Manganese Steel Scraper and muller plates, pug mill knives, auger machine knives, gears and pinions and any other parts where there is excessive wear. We have patterns for all standard parts. Demand "Era" brand. Backed by years of tried service. Tough, hard, wear-ever. Saves and slaves for the Clayworker.

The Hadfield-Penfield Steel Co.
Bucyrus, Ohio

AMERICAN GASOLINE LOCOMOTIVE

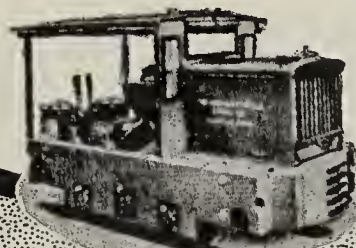
An Ideal Machine to Produce Continuous Haulage at Minimum Cost

If you have haulage work to do, let the Gas-O-Motive do it. The engine is so simple in construction, so ruggedly built, that it can go through the severest service—service that would put other apparatus out of commission—and come out ready for the next job. "Gas-O-Motives" rarely visit the repair shop.

If you have a haulage problem send us your name and address.

"Over a 2,000 foot grade, ranging from 5 to 7 percent, the American Gasoline Locomotive hauls two cars of 2½ yard capacity each, and does it constantly. It works perfectly." Okmulgee Brick Co., Okmulgee, Okla.

THE HADFIELD-PENFIELD STEEL CO.
BUCYRUS, OHIO





**50,000 Bricks
Daily from this Kiln
with less than
1% Salmon**



The above picture shows the Lehigh Brick Co.
at Allentown, Pa. "It's a Haigh."

LET

—
**No Repa
in Six
Years**

—
**No Shu
Down in S
Years**

—
**"Continuou
Service**



ALLENTOWN TELL YOU

Continuous!

Just what does that word "Continuous" mean when you say "Continuous Kiln?"

In the accepted term it means that you keep burning in the various departments of the kiln without allowing the fires to go out in order to remove the ware.

But in the Haigh Continuous Kiln it means more.

At Allentown, Pa., this kiln, shown here, has been in "Continuous" operation since the day it was started—six years ago.

Even during the war, when others had to cut their coal consumption to half, this Allentown kiln kept its fires going "Continuously" because it was using less than half the coal per thousand brick that other manufacturers were using. That's the way the Haigh Kiln saves for you.

Six Years' "Continuous" Service.

No Shut Down in Six Years.

No Repairs in Six Years.

No Bats or Waste.

One Per Cent of Salmon.

One Half the Fuel of Other Kilns.

50,000 Rough Texture Face and Common Brick Daily.

That is briefly what The Lehigh Brick Co., of Allentown, Pa., is doing with the Haigh Continuous Kiln.

"Let Allentown Tell You."

The Hadfield-Penfield Steel Co.
Bucyrus, Ohio

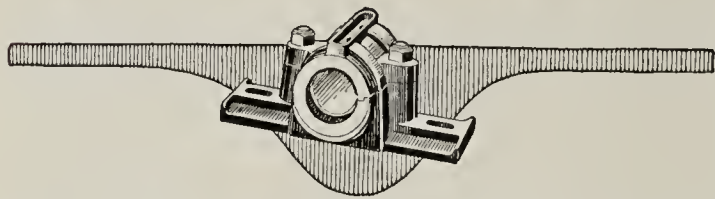
GEARS

SMOOTH running; correct in design, accurate and true to pitch, Caldwell gears are bound to please you. We make all types—machine-molded, cut tooth, mortise gears, worm gears, etc. Caldwell Promptness is Traditional. It is at your service. Our stocks assure prompt shipment.

Let us figure with you next time you are in the market.

H. W. CALDWELL & SON CO. LINK-BELT COMPANY, OWNER
Dallas, Texas, 709 Main Street—Chicago, 17th Street and Western Ave.
New York, Woolworth Bldg.

CALDWELL



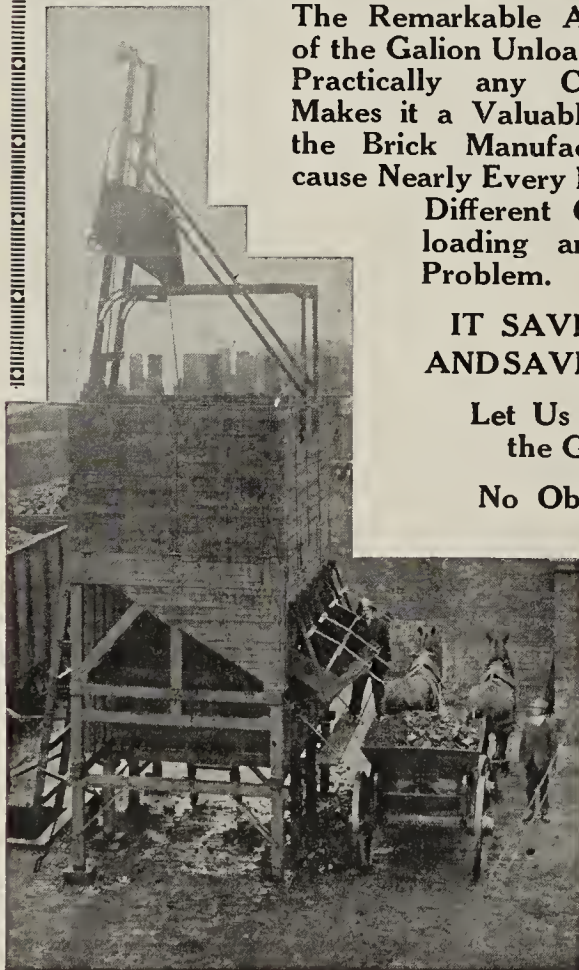
Adaptability

The Remarkable Adaptability of the Galion Unloader to meet Practically any Conditions Makes it a Valuable Asset to the Brick Manufacturer, Because Nearly Every Plant Has a Different Coal Unloading and Storing Problem.

**IT SAVES TIME
AND SAVES MONEY**

Let Us Explain
the Galion

No Obligation



The
GALION
Iron Works
& Mfg. Co.
Galion,
Ohio

The Letter Box

A Place Wherein Letters
That Have General Interest
Are Published
and Commented Upon

THE QUESTION OF DEALER DISTRIBUTION

A very interesting letter was recently received by Brick and Clay Record from an Iowa brick and tile manufacturer which gives that company's views and policies on dealer distribution. The subject of dealer distribution is such a big one and so difficult of solution that any suggestions are always welcomed by other manufacturers. This letter, therefore, is reprinted herewith:

"We think that the question of dealer distribution is one of the most important subjects before the clay products manufacturers today, and without doubt the manufacturer and dealer both should come to a better understanding. The articles you have printed on this subject will therefore do much to bring about this feeling that a little more cooperation should be given the dealers in handling clay products.

"In reading your article in the April 17 issue we received the impression that many manufacturers are willing to protect the particular dealers who handle their own line, but many of them fail to protect the dealer who is handling a competitive line. None of us can expect to secure a good, live dealer in each of the small towns and cities that we are able to reach. If this were possible, we would not be able to take care of the business that would be given us. We have our salesmen out, and of course try to secure all of the dealers that we can, and to be frank with you, feel that we have our share, but it is not our belief or policy to quote direct without protecting the dealer in towns where we are not represented. One of the best ways to secure a new dealer is to refer an inquiry to him, and write the prospect that Mr. Lumberman of his city is handling our material, and will of course be glad to give him prices, and so forth.

"There is much to be done in the state of Iowa towards securing more dealer distribution of clay products for there are several manufacturers selling practically all of their output direct, and particularly some of the manufacturers of hollow building tile. It is true that the dealers have not shown the cooperation that they should, and a large percentage of them talk lumber in preference to hollow tile, and their excuse is that they cannot make enough profit from the sale of clay products. We do not think that they are entitled, or should have the same percentage of profit on hollow tile and brick that they receive on lumber for it is not necessary to carry more than from \$200 to \$1,000 worth of material in the average yard while they have approximately \$25,000 tied up in lumber stock. As a rule clay products can be handled without any extra help, which means that whatever profit they secure is practically velvet as most of their side lines are.

"We refer a great many inquiries that we receive direct and also from the American Face Brick Association, and the Hollow Building Tile Association to dealers, and very few of them acknowledge the letters. This means that some of them are not after the business as they should be, altho the chances are a great many of these inquiries are followed up.

"It has been our custom to protect dealers who are selling clay products in carload lots, only, but at the same time we feel that they are not actually entitled to any consideration and protection. They fail to render service to either customer or manufacturer as they merely order the car of tile or blocks without carrying anything in stock. This same dealer, however, is just as anxious and insistent that he be given protection, and that commission be given him if anything is sold direct."

* * *

JOINTLESS BUILDING NEW PLANT

The Jointless Firebrick Co., Chicago, Ill., has commenced the erection of its proposed new plant on New York Avenue, Trenton, N. J., and expects to have the initial building ready for service at an early date. It will cost about \$35,000. The James H. Morris Co., Inc., Trenton, has secured the building contract.

Questions and Answers

Best Authorities in Every Clay Working Branch Are Called Into Consultation—Their Advice Is Free to You, Thru These Columns

Address all communications intended for this department to "Editor Questions and Answers, care of Brick and Clay Record," Chicago

1,067. *Mississippi.*—We have recently constructed furnaces to burn coal in one of our up-draft kilns and have made two burns in this kiln on soft mud brick. Each time we have burned the brick too much. They were badly kiln marked nearly to the top and were stuck together and out of shape from midway in the kiln to the bottom.

In our other furnaces where we burn wood and coal mixed, we were almost unable to burn our brick too much, even when pushing back four to six sliders with every fire and burning 14 to 15 days. But with the coal furnaces we burned our brick in nine days with the above results.

We use five herring-bone grate bars six inches wide and three feet long, making a furnace $2\frac{1}{2} \times 3$ feet, or $7\frac{1}{2}$ square feet to each furnace.

The throat leading into the kiln is 6 x 10 inches; the width of the kiln is 22 feet; distance between each throat is 43 inches; the brick are set eight over three and 42 high.

We fired very light every half-hour, using only three or four small shovelfuls of coal, scattered over each furnace and the coal bed was never over four inches deep.

It took four days to water-smoke and five days of coal firing to finish the burn. We dirted the kiln all over the top, lightly the last 24 hours.

We believe we have more grate surface than is necessary and would appreciate advice thru Brick and Clay Record as to whether or not we should use a three grate or four grate bar furnace (each grate bar being six inches wide and three feet long) instead of the five grate furnaces which we now have. We will also appreciate any suggestions as to procedure from start to finish in burning a kiln with all coal.

Several persons who have had experience with burning in up-draft kilns, were called upon to give counsel on this manufacturer's problem. N. L. Meir of La Crosse, Wis., is of the opinion that the above concern has too much grate surface and hence, necessitating too much firing. Moreover, he states that he is of the opinion that the top of the kiln should never be dirted since this procedure has a tendency to shut off all draft which will start a kiln settling too soon, and the result will be overburned and out of shape brick about one-half way up in the kiln. Mr. Meir further states: "As we have always used forced draft at our plant for burning coal, I must admit that I have never had any experience in the burning of coal with natural draft in up-draft kilns."

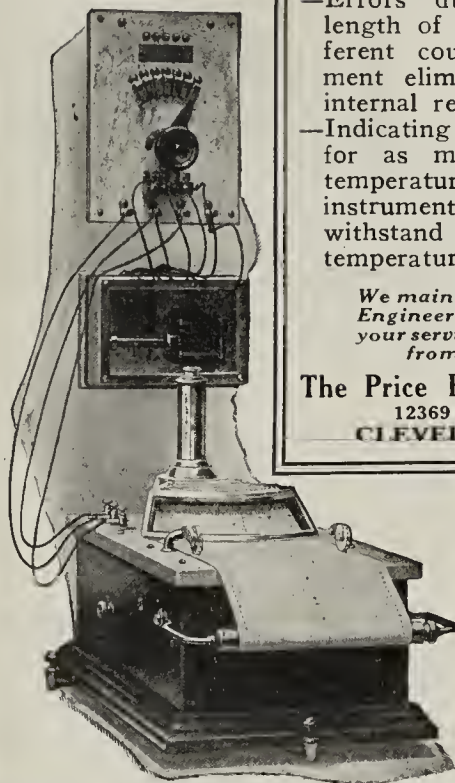
Elias Petts, who was the author of a series of articles on burning which have appeared in Brick and Clay Record recently, writes: "I think there are too many things which contribute to the trouble that your Mississippi correspondent is having. They are correct, I believe, in thinking that they have too much grate surface unless their grates are a great deal less than 50 per cent. of the opening or draft space. I am assuming that they use a furnace to each arch and as their kiln is only 22 feet wide, their grate surface would be too much. In other words, if you keep that much grate surface covered with a good fire, you get more heat in the kiln than the clay will stand, unless it is a clay that will stand a very strong heat—much more than the average brick clay.

The PRICE PYROMETER

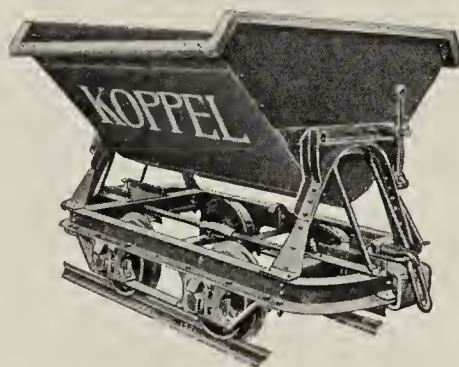
- Clay plants appreciate Price Pyrometers as messengers of unfailing service.
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Dryer, Transfer and Clay Cars,
with Flexible Bearings.
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USE R. & H. PRECIPITATE CARBONATE OF BARIUM TO PREVENT SCUMMING AND THEREBY PRODUCING BRICK THAT ARE RICHER AND DEEPER IN COLOR, CLEANER AND CLEARER IN APPEARANCE.

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BOSTON
PHILADELPHIA

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NEW ORLEANS
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KANSAS CITY
CLEVELAND
SAN FRANCISCO

"Our brother does not tell us how wide his benches are. If we had this dimension, we could get closer to the amount of grate surface needed.

"Some clays in Mississippi are very easily melted if you get a little above the burning point. I use a 40x41 inch grate surface for a furnace that feeds two arches in a kiln 25 feet wide and 40 inches from center to center of arches. This gives me about 12 feet of grate surface to burn 83 2/3 square feet of kiln, or about seven feet to each foot of grate surface.

"Granting that their arches are the same distance from center to center, they are burning a little less than five square feet to one square foot of grate surface.

"I have built many kilns of this type which burn ten square feet of kiln to one square foot of grate surface.

"If you take out two grates, you will burn about eight square feet of kiln to one square foot of grate. If you will take out only one grate, you will burn nearly seven square feet of kiln to one foot of grate. This is all figured as stated above on a basis of 40 inches from center to center of eyes.

"I think I should try four grates first, because if you can use four grates you can burn more quickly than with three grates. You will, of course, have to place the grates in center of furnace and close the opening on each side to keep out draft at that point. A good way to do this would be to take a piece of 2 1/2 x 2 1/2 inch angle and fasten same to side of ash pit, and then fill in with fire brick, the brick to come up to grate level.

"The other factor that causes the overburning, is dirtying the top of the kiln. This is especially dangerous if you have too much grate surface, and it always requires careful watching or you will overburn your kiln in the bottom and over the arches, as it cuts the draft at the top and bottles up the heat further down in the kiln. I prefer an extra course of platting to dirt and it is much cleaner.

"The article on burning in up-draft kilns in the January 23 issue of Brick and Clay Record will give you many hints on this subject. I hope this may prove helpful, and I am sure Brick and Clay Record would be glad to hear how helpful it is."

Frank R. Lambert, superintendent of the Illinois Brick Co., a concern that uses up-draft kilns, states that he is of the opinion that enough air is not permitted to enter the kiln along with the heat. Thus, the moisture is not being removed at the top and due to the colder brick there, condensation is taking place in the upper part of the kiln, which causes the upper brick to soften and lag in burning. This trouble is frequently cured by letting in more air thru the furnaces.

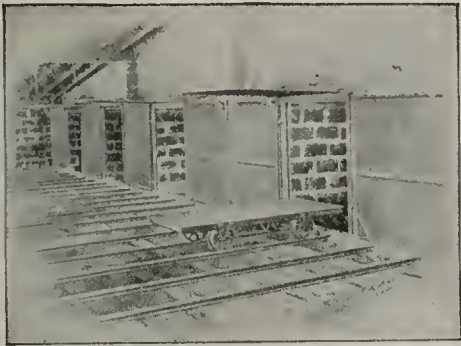
Fred Gleckler, an Ohio manufacturer of building brick who is an expert in burning up-draft kilns, remarks: "Replying to the inquiry of the brother manufacturer from Mississippi, will say that I can see nothing wrong with his kilns or methods as described except that his grates are entirely too large for a 22 foot kiln.

"He can remove two of the five bars and still have sufficient grate area to carry him thru under all conditions. Under favorable conditions such as best quality coal and clean grates he could even get along with two bars, but with a slow burning coal or run of mine coal it will be much easier to get along with three.

"A grate 2 1/2 x 3 feet takes too much fire to keep it covered and in order to renew the bed before it burns out completely, it will give the ware more than it can stand with results as described.

"When firing with the three bar he will find that for water-smoking and for raising heat, his grates will be none too large and will be able to fire at a good rate, but after the kiln gets well under way and platting all down and tight then the arches will become very hot and in order to prevent the difficulty as described it will be necessary to fire lighter. This is easily

DRYER ECONOMY



ROBINSON'S

Pittsburgh Direct Heat Dryers
are designed to dry any ware economically

The circulation, on account of arrangement of flues and tunnels, is entirely natural and starts the ware drying from the **INSIDE** out. This eliminates the necessity of excessive temperatures and reduces fuel costs. The heat, being of the radiated type thru the floor of the dryer, does not subject the cars and ware to the action of sulphur fumes from burning coal.

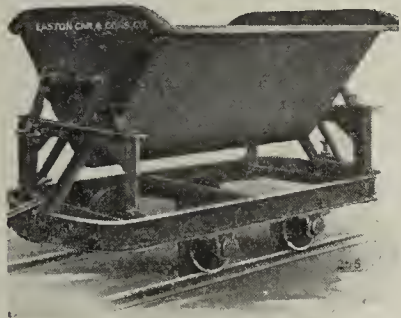
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The Model "F" 6-ton Minster Locomotive has proven itself to be the most practical haulage unit for clay plant use, saving time and labor, and giving uninterrupted service day in and day out.

Made in 2 to 8 ton capacities.

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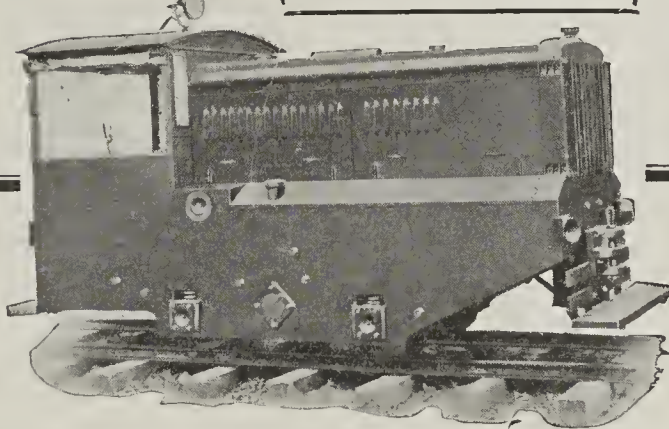
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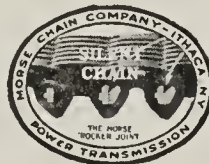
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MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

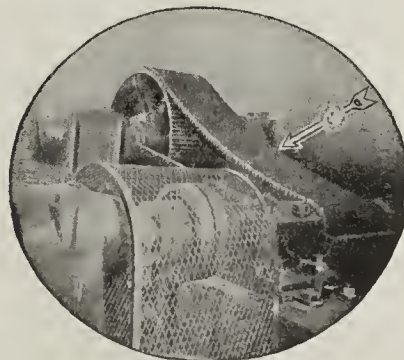
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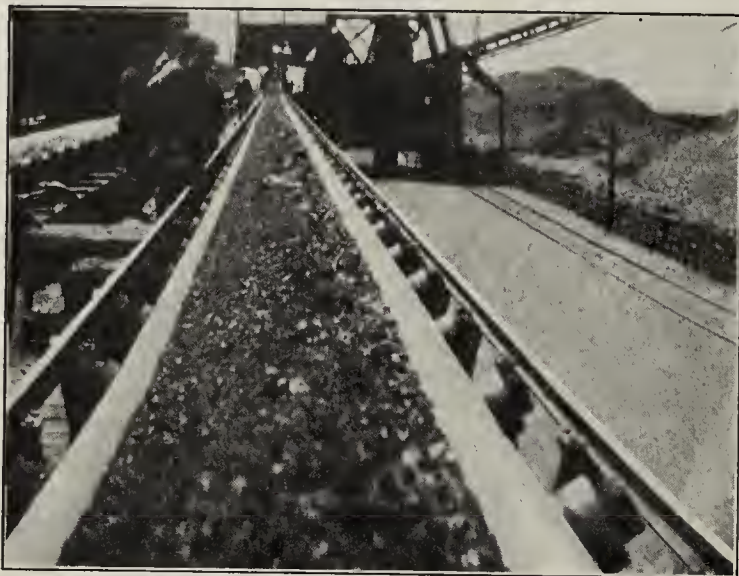
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**ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
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GENERAL SHEET and
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PLATE CONSTRUCTION**

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accomplished by watching very closely thru peep holes and by firing according to the condition of each arch. If the arch is very hot, then put in one or two shovelfuls instead of four. It is also very practical to fire lighter by putting two shovelfuls on the pile instead of scattering it evenly over the grate. This will have a tendency of banking the fires and to make them last longer.

"The writer uses fire brick arch protectors, one purpose of which is to mix air with heat. When the arch becomes overheated, the doors may be left partly open after firing until the arch has shaded down. This will have no bad effects upon the arches; will improve the color of the kilns and is the best method that I know of for keeping the arches or fireboxes from being overheated.

"Burning a kiln from start to finish with soft coal is no different than firing with wood except that it is much easier. A fire of from four to six shovelfuls of coal will last just so long each time and there will be nothing to do until this fire is nicely burned out. Then put in so much more. A fire at first will last about 2½ hours, but as the draft picks up and the firebox becomes hotter the fires will burn faster until about the third day when the steam leaves the heads; then you may begin to fire stronger in order to get the arches red thruout. Up to this time, your kiln doors could be half open, but should now be closed to about one-third. Conditions and circumstances should govern from now on and there is no set rule that would apply under all conditions.

"You will, however, find that the kiln will frequently become blocked with soot and when the kiln is properly set for economical results (about 6 on 2) they will be sure to require shooting. We do this with a special gun made for that purpose, a load for shooting a kiln consisting of about a teaspoonful of rifle powder mixed with a tablespoonful of blasting powder.

"A few dollars worth of powder if bought by the can will ordinarily be sufficient for a ten-arch kiln. Don't spare the powder; it is cheaper than wood or coal."

Drawn from the Kilns

**Being Brief Mention of a Host of
Interesting Happenings in the Varied
Fields of Clay Manufacturing**

McDONALD TO MAKE BUSINESS TRIP

A. P. McDonald, of the P. Bannon Pipe Co., Louisville, Ky., has arranged to leave Louisville from June 11 to 15, with the Boosters of the Louisville Board of Trade, who have arranged the usual spring trade trip into Eastern Kentucky.

LUCKTENBERG LEAVES BURTON-TOWNSEND

William H. Lucktenberg, vice-president and general manager of Burton-Townsend Co. of Zanesville, Ohio, has resigned his position and left the company, May 31. Mr. Lucktenberg intends to spend the next few months at his summer cottage at Buckeye Lake, Ohio.

W. H. FRINK PASSES AWAY

William H. Frink, well known in glass and other ceramic industries, died at his home in Lancaster, Ohio, of apoplexy on May 29, 1923, in his 73rd year.

Mr. Frink was a native of New York State and for a period of years acted as master mechanic for the United Glass Co. of Cleveland, N. Y. He then entered the employ of the American Window Glass Co. in the capacity of master mechanic. Since 1907 Mr. Frink has been engaged in the promo-

ARE YOU SEEKING A PATH TO—



- Labor saving
- Greater production
- Uniform product
- Fuel economy

The installation of a RUSSELL TUNNEL KILN in your plant will bring about these results as they have in every plant where they have been built.

Submit your kiln data to our engineers as basis for an intelligent estimate of possible savings.

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TUNNEL KILNS

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If you are contemplating the construction of a new plant, get full information regarding the rich clay deposits situated in the HEART OF THE GREATEST INDUSTRIAL REGION OF THE WORLD, divided approximately—6 ft. Plastic Clay, 5 ft. Semi-Flint Clay, and 5 ft. Flint Clay, eliminating the necessity of importing any materials. In many places coal is underlying the clay.

L. E. F. & C. R. R. connecting with N. Y. C. Lines east and west; Penna. Lines east and west; Erie R. R.; Buffalo, Rochester & Pittsburgh R. R.

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Rubber Goods for the Clay Industry

Test Special Rubber Belting
Indestructible Conveyor Belting
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No. 4 Burner



FOERST Fuel Oil Burners Give —

Economy in Fuel—because they develop full efficiency of the oil.

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Economy in Quality of Results—because color of ware is the same top and bottom. No sorting is necessary.

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Fuel Oil Engineering Co., Cincinnati, Ohio Elliott & Selby, Philadelphia, Pa.

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FUEL OIL BURNERS



**HY-GRADE MANGANESE CO.
WOODSTOCK, VA.**

**Miner
and
Grinders**

**Especially Prepared
for Brick Making**

SIL-O-CEL

PREVENTS HEAT PENETRATION

TRADE MARK REGISTERED U.S. PATENT OFFICE
A CELITE PRODUCT

Kiln Insulation

HEAT lost through walls and settings of un-insulated kilns increases production costs

- 1—by causing an excessive consumption of fuel;
- 2—by making it difficult to get high temperatures and hold them evenly;
- 3—by causing imperfectly burned ware, due to uneven temperatures.



SIL-O-CEL Insulation reduces production costs

- 1—by preventing heat waste, thus lowering your consumption of fuel;
- 2—by holding a uniform temperature within the kiln and so reducing the number of rejects;
- 3—by protecting the outer walls of the kilns from temperature strains, prolonging their life and saving repair bills.

Complete information on Sil-O-Cel Kiln Insulation gladly sent upon request. Write nearest office for Bulletin B-5A.

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tion and exploitation of the Frink window glass machine patents, as also in the development and sale of Frink pyrometer equipment, Frink glass decolorizer and other products developed in the Frink laboratories for the glass and ceramic industries.

STURTEVANT REVIEWS BUSINESS IN TEXAS

E. R. Sturtevant, vice-president of the Fraser Brick Co., of Dallas, Tex., has just returned from a trip that took him over the whole state of Texas. He says that he finds no evidence of general slackening and things are shaped up so that he believes building will continue to be active through 1923, '24 and '25, depending, of course, on good crops.

PAYNE MEMBER OF JUNKETING PARTY

J. Howard Payne, vice-president of the Fraser Brick Co., Sumpter Building, Dallas, Tex., was a member of the special train which, during middle May, carried a number of textile men around the state, in an effort to build more cotton mills in Texas. Mr. Payne combined business with pleasure and was one of the liveliest members of the Good Will Special. Mr. Payne recently was appointed chairman of the Clay Products Group, appointed recently by the Texas Chamber of Commerce.

BUYS POTTERY MACHINE COMPANY

Andrew Baird, who was formerly vice-president of the Baird Machine & Manufacturing Co., Detroit, Mich., has purchased from the receiver of that company all patterns, tracings, drawings, merchandise on hand, special tools and fixtures, and so forth, used in the manufacture of Baird pottery molding machines and pug mills. Mr. Baird was designer of these machines and factory manager of the company. He is familiar with every detail of construction on the machines and the dies for producing plain and special ware. The company's old customers have come back to them since Mr. Baird has taken charge and business is very good.

TO ERECT MEMORIAL FOR GLANDON

The Chamber of Commerce of Mexico, Mo., has started a movement to secure a fund for the erection of a fitting memorial in honor of the memory of J. A. Glandon, whose death was announced in Brick and Clay Record last issue, and who, at the time of his death was vice-president of the A. P. Green Fire Brick Co. of Mexico and a number of other business enterprises. The A. P. Green company has announced that it will start the fund with a substantial amount that will be raised among its employes and officers voluntarily. No subscriptions will be solicited. The memorial will be practical and may take the form of drinking fountains in the grade schools of the city.

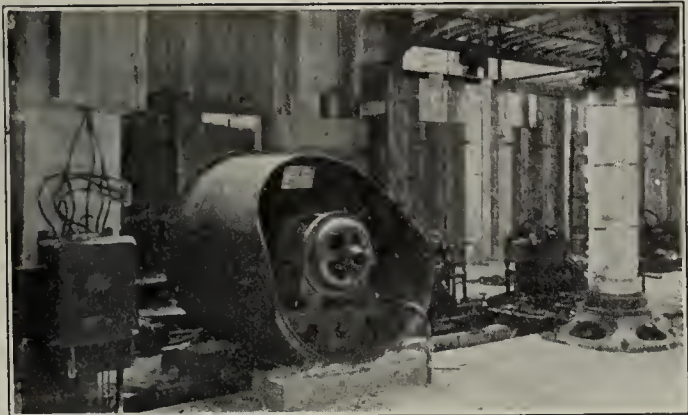
J. B. OBERLY PASSES AWAY

James B. Oberly, Wilmington, Del., a well-known brick manufacturer, died at his residence on North Broome Street in that city on May 27, at the age of 67 years. He was a native of Bucks County, Pa., and took up the brick manufacturing business at Perkasié, Pa., in 1886. Three years later he established the business at Wilmington and has operated continuously at this location since this time. The Oberly plant is one of the best known of the eastern brick plants. Mr. Oberly was a member of the local city council for three terms, and for two of these he served as chairman of the finance committee. He is survived by his widow, two sons and one daughter. The brick plant will be continued by his sons, Howard H. and Charles M. Oberly, who have been in charge of the business since the time of his last illness.

FORM COMPANY AT BIRMINGHAM

The Stephenson Brick Co. has been incorporated at Birmingham, Ala., with a capital of \$400,000 and with L. L.

Oil Fired Kilns



Require a Blower, Oil Pump and Heater as shown above.

When using our combination gas and oil burner, the blower is used for either oil or gas.

Ask for information regarding
T-J System of Burning Oil.

Tate Jones & Co. Inc.

Furnace Engineers

Established 1898

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"WITH [ONE] MAN and one ERIE Shovel, we easily get our 300 cubic yards per day. This is sufficient to take care of the daily output at each of our 3 plants, but we could easily increase this output if necessary. In our opinion, the ERIE is the shovel."—Edw. T. Conley, Sec'y, Bradford Brick and Tile Co., Bradford, Pa. (Owners of 3 ERIES.)

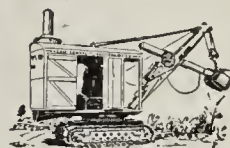
For larger output than the above—500 to 600 cubic yards per day, or more—it is advisable to use two men on the shovel. But when your plant requirements are not too great an ERIE and one man will serve.

We will be glad to send you data showing just what you can do with the ERIE. Write us.

ERIE STEAM SHOVEL CO.

Formerly Ball Engine Co.,
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Builders of ERIE Steam Shovels and Locomotive Cranes



ERIE Shovels can be had with broad tired traction wheels, standard gauge car wheels, or on ERIE lubricated caterpillar type mounting. All interchangeable on the same truck frame.

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Revolving
Shovels

ERIE
Steam
Shovel

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New and Re-laying Rails, Frogs, Switches, Splice Bars, Bolts, Nuts, Spikes, Tie Plates, Rail Braces, Drills and Saws.

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Pittsburgh New York

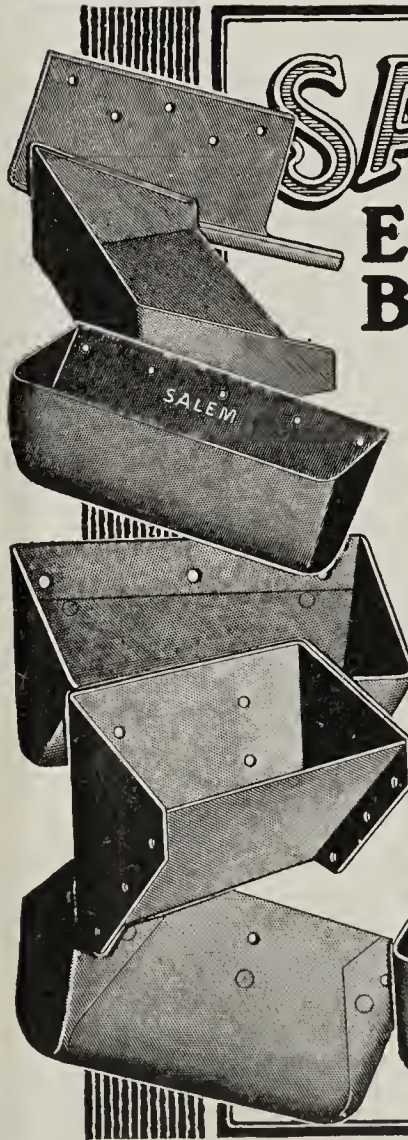
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The original—Awarded First Premium in 1880—which has many imitations—further endorsed by the many imitations now on the market.

Standard for 40 Years
Made in all types and sizes for every requirement in Regular, Medium, or Extra Heavy Gauges—stock sizes, or Special Sizes made to order.

Send for catalog and price list, or submit specifications for price quotations.

Mullins Body Corp'n
Successors to W. J. Clark Co.
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PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

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COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
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The shovel operator handles the Northwest Gas Shovel with the same ease as the truck driver handles the most flexible truck.

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NORTHWEST
SHOVEL

**CRANE
DRAGLINE
SHOVEL**

Stephenson, Sr., L. L. Stephenson, Jr., and W. Bowen Henderson as the incorporators.

THRESS ADDING TO KILN CAPACITY

The Thress Brick Co., at Tuscaloosa, Ala., has just completed three large additional brick kilns at its plant, and will commence building three others within a short time. Each of these new kilns will have a capacity of 150,000 brick.

SOUTH WANTS LOWER FREIGHT RATES

Birmingham, Ala., brick manufacturers, and manufacturers of other clay products, are asking for lower freight rates. John W. Sibley, of the Birmingham Clay Products Co., accompanied by Charles E. Jones, secretary of the Birmingham Traffic Association, attended a meeting held in Atlanta, Ga., recently, for the purpose of adjusting railroad rates on clay products for Birmingham and other sections of the South. It is believed that the meeting may result in more satisfactory rates to the clay manufacturers. "We are now paying 300 per cent. more on brick from producing points in the Birmingham district to Birmingham than we paid before the war," said Mr. Sibley. "The rate for years was 75 cents. Now it is \$2.25 per thousand, and railroads are talking of raising the rate to \$3. In the event an agreement is not reached between the clay workers and the railroads, the clay workers will take the matter before the state railroad commission for an adjustment."

VAN BUREN BRICK & TILE FORMED

The Van Buren (Ark.) Brick & Tile Co. has been incorporated with a capital stock of \$15,000, by C. M. Wofford and Cly Wood, it is reported.

CARPENTERIA PLANT NOW PRODUCING

The Carpenteria (Cal.) Clay Products Co. has had a hard time to get under way, but is now forging ahead with full steam on. The plant is now turning out 30,000 brick daily with a capacity for 50,000 and orders for 2,000,000 ahead. Production of a good quality of clay tile has also been begun.

RICHMOND REMODELING PLANT

The Richmond (Cal.) Pressed Brick Co. is wrestling with expansion troubles. The whole plant is being overhauled and enlarged, and being made ready for the installation of new machinery. To do this while maintaining production to meet the demands of absolute necessity is proving a considerable feat.

STOCKTON COMPANY BUSY

The Stockton (Cal.) Fire Brick Co. finds the demand for its product keeping pace with the increasing demand for all building materials. As the product is so necessary to the many growing industrial enterprises, as well as to the boiler rooms of large buildings and in fire-place construction, the company enjoys a very steady, as well as growing trade. It is said that the Stockton company controls about 90 per cent. of the coast trade in the products which it manufactures.

WANTS MONEY FOR EXPANSION

A fine sample of business appeal is that issued by Franklin Heywood to the people of Vallejo, to come to the front and assist with their dollars in the enlargement of the plant of the Steiger Clay Products Co., located at that point. This company owns fifty-two acres of a very fine grade of shale,

Confidence! Faith!

We have faith in our ability to better your kiln operation and results by equipping them with GATES AUTOMATIC STOKERS. We back this up by our willingness to show you any installation we have made.

This is as fair an offer as can be made by anyone, and, we believe, merits your confidence. Come and see them yourself—no matter how skeptical you may be.

The Clay Service Corporation
128 N. Wells Street
CHICAGO

Increase the value of your product by improving
the color with

LAVINO BRAZILIAN MANGANESE

"Best for Face Brick"

Economical
Adaptable to any Clay
Intense Staining Powers
Various Effects Obtainable
Uniform Analytically and Physically

Liberal samples and full information
gladly furnished upon request.

E. J. LAVINO and COMPANY

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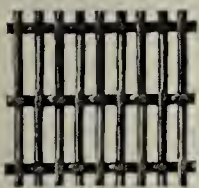
TYPE 31 - Six Foot HUM-MER

HUM-MER Electric SCREEN

Makes screening and crushing
more profitable. Screens any
material, wet or dry, from 2½"
opening to minus 200 mesh

Send for Catalogue No. 45-B

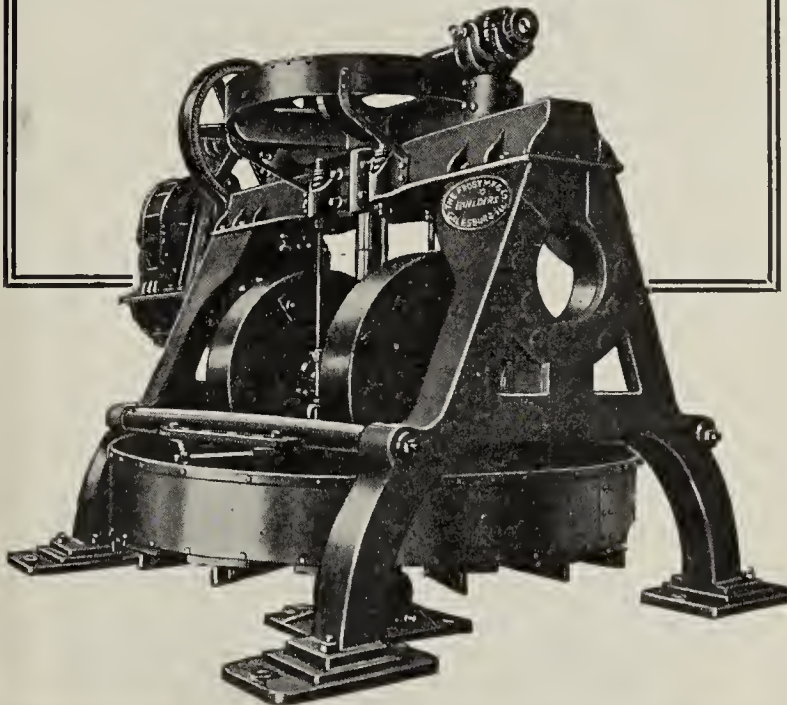
THE W. S. TYLER COMPANY
CLEVELAND, OHIO
Manufacturers of Woven Wire Screens
and Screening Equipment



BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE



When There's Coal To Unload

Years ago when labor was plentiful and its cost was low, it didn't mean much to unload a car or two by hand. Today with labor costs sky-high, you've just got to use machinery to do the job and to stay "in the black" on the ledger. One of the best aids on the market is the

ROBBINS PORTABLE CAR UNLOADER

It is designed to solve various unloading conditions and it does it too—does it efficiently and economically for some of the largest Brick, Coal and other Industrial Plants in the country. Our many years of practical experience with material handling problems is at your disposal.

Get the Facts



Let us tell you more about the Robbins Portable Car Unloader—how it works—what it has done for others—what it can do for you. An inquiry implies no obligation. Write us now.

Robbins Machinery & Supply Co.

444 W. Grand Ave. Chicago, U. S. A.
"Machinery for Moving Merchandise"

Cut Your Burning Time

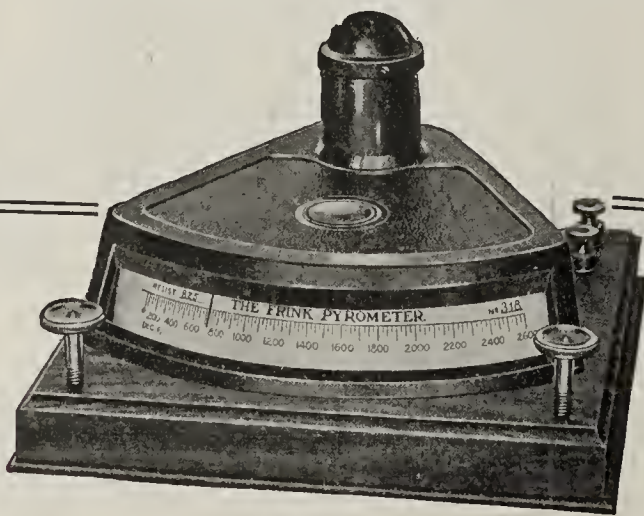
*by equipping your kilns
with*

FRINK PYROMETERS

which afford perfect control of all temperatures—saving time and money in the burning and enabling your burners to hold even temperatures, thus improving the quality.

WRITE FOR DETAILS

THE FRINK PYROMETER COMPANY
LANCASTER, OHIO



is close to an unlimited market with excellent transportation, and the plant is in successful operation. It is under the direct management of L. A. Steiger, considered an expert on clay products manufacture. He has had 35 years of successful training and experience.

PLANNING TO BUILD MORE KILNS

Manager Ford of the California Pottery Co., of Merced, Cal., reports that they have secured a number of orders they were not anticipating. The plant is now working on an order for 100,000 corroding pots for the National Lead Co., to be used in the manufacture of white lead. This will probably be followed by similar orders, as the Merced clay is found to be ideal for this purpose. The six large kilns are working to capacity; and new ones will be built as soon as time can be taken to manufacture the brick and other material. The present problem is not to get orders, but to get into shape to keep up with the orders.

BRICK PUSHES FRAME INTO BACKWOODS

Denver is a city of brick homes. People are thoroly sold on the idea of permanent construction and the city itself insists that only fireproof structures be erected within prescribed limits. That brick men have thoroly cornered the home market is evidenced by an ad appearing recently in one of the Denver papers, urging people to "Come Out Where You Can Build a Frame House." This, in a way, is a tacit admission that a frame house will not compare with one of permanent construction. So, in order to build a frame house in Denver people must go practically outside of the city limits.

MUCH PLANT BETTERMENT IN COLORADO

Colorado brick manufacturers are experiencing an unusual demand for clay products. Activities in the building trade are extremely brisk, and most all the progressive brick manufacturers are installing new machinery and increasing their capacity. William H. Merkel, western representative for the Hadfield-Penfield Steel Co. of Bucyrus, Ohio, has sold new machinery and dryer equipment for the following plants:

The Denver (Colo.) Sewer Pipe & Clay Co. is building a complete new plant for the manufacture of stiff mud wire cut face brick. The company has also placed an order for the equipment of a 16 tunnel waste heat dryer. This plant will have a capacity of 50,000 brick daily.

The Golden (Colo.) Fire Brick Co. placed an order for complete equipment for the installation of an eight-tunnel waste heat dryer; also a new machine.

The Standard Fire Brick Co., of Pueblo, Colo., is now installing a new machine which will increase capacity about 40,000 brick daily.

The Summit Press Brick & Tile Co., of Pueblo, Colo., has placed an order for a complete stiff mud brick plant, together with a 12 tunnel waste heat dryer. The entire equipment of this plant is furnished by the Hadfield-Penfield Steel Co.

The LaJunta (Colo.) Clay Products Co. has made a number of improvements. A new and modern power plant has just recently been completed. All of the plant's machinery is being thoroly overhauled and the use of teams in the clay pit is being abandoned. They will be replaced with a four-ton gasoline locomotive.

MURPHYSBORO FREIGHT RATES REDUCED

The Interstate Commerce Commission should find that the freight rates on brick, in carloads from Murphysboro, Ill., to various points in Kansas, Nebraska and Missouri will be prejudicial against Murphysboro in the future to the extent that they are two cents per 100 pounds higher than the rates on like traffic from St. Louis, Examiner Harris Fleming advised in a complaint of the Murphysboro Paving Brick Co. The rates to Kansas points also will be prejudicial against Murphysboro in the future to the extent that they

If Marked

BREWER

It Is Good

Clay Working Machinery

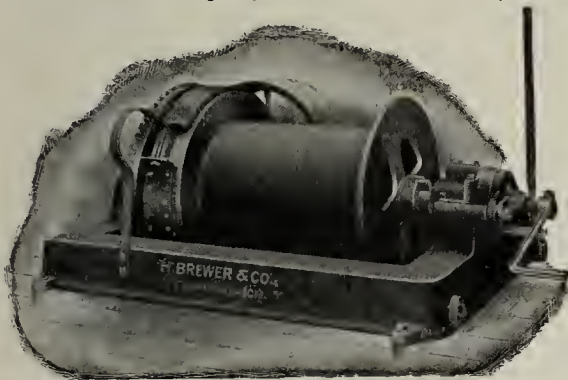
Block, Brick and
Tile Machines
Pug Mills
Crushers
Granulators

Feeders
Disintegrators
Dry Pans
Cutters
Hoists, etc.

Free Engineering and Clay Tests

Brewer engineering service is available without charge or obligation. Competent men will give you best advice, look over your plant and make suggestions for any needed improvements. Take advantage of this free service. Send for Brewer catalog.

H. Brewer & Company Box 25 Tecumseh, Mich.



Records Speak Volumes

The unusual qualities of Caldwell Cypress Tanks are proven by their enviable records in all sections of the country. Perhaps this is largely due to the fact that, of all woods, cypress is the one which lasts best outside its native climate.

Thirty years experience in building tanks enables us to couple this remarkable tank wood with workmanship and design that ensure the maximum of tank satisfaction.

Send for Catalog

W. E. Caldwell Co.

Incorporated
2380 Brook St., Louisville, Ky.

Caldwell
TANKS
AND
TOWERS



Jenarco

In sheets
or
ready cut
gaskets

Strong, tough, durable

These are the qualities of Jenarco Sheet Packing that mean tight, leak-proof joints on lines carrying saturated steam, hot or cold water, and other fluids. In Jenarco are combined knowledge and skill acquired by long experience and determination to produce only the best.

Know Jenarco by its name and dark red color. Obtain it through your supply man.

Use Jenkins Compressed Asbestos Jointing for superheated steam service.

JENKINS BROS.

New York

Boston

Philadelphia

Chicago

Jenkins Packing

2748-J

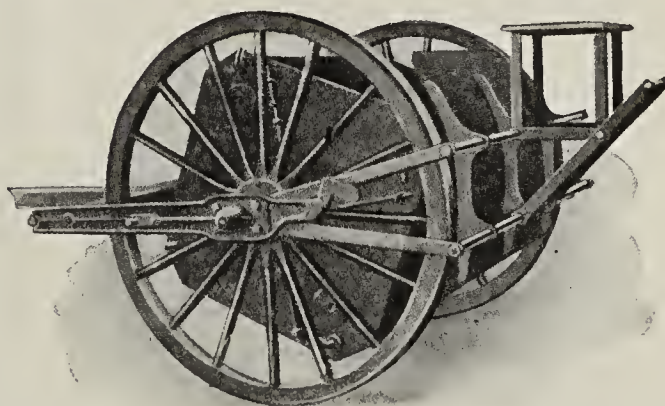
To Gather Surface Clay and Shale—

there is no cheaper or more efficient way than by using The Fernholtz Improved Clay and Shale Gatherer.

Actual tests and testimonials from brick, tile and pottery plants in nearly every state in the Union verify our claim that with the use of this improved gatherer about ONE-HALF OF THE COST OF CLAY AND SHALE GATHERING CAN BE SAVED.

Write for full information
regarding this machine

Fernholtz Brick Machinery Company
ST. LOUIS, MO.



A Better Tailing Grinder

Simplicity, durability and large capacity are points in the Gruendler Crushers and Pulverizers which make them the most popular with Brick and Clay Manufacturers.



The illustration shows the Gruendler Tailing Grinder. It handles all tailings, brick bats, and broken tile better than any Crusher or Pulverizer we know of, reducing to uniform fineness in one operation without screenings.

We also manufacture Shale and Clay crushers, dryers, revolving screens, elevating and conveying machinery.

Write for circulars showing how to reduce costs.

GRUENDLER PATENT CRUSHER & PULV. CO.
924 N. Main St. Established 1885 St. Louis, Mo.

GRUENDLER
CRUSHERS • PULVERIZERS • GRINDERS

THE MINTER SYSTEM

—200 Lbs. Coal per Ton of Ware—

WE BUILD COMPLETE PLANTS or ANY PART

Nine of our Kilns will produce as much as 15 Kilns burned periodically — any product — any fuel. Saving first cost of six Kilns.

Ten of Our Recirculation Drier Tunnels will dry as much as fifteen old line tunnels. All ware dried evenly without strains. No loss, wrecks or other delays. Saving first cost of 6 tunnels and equipment.

Kilns and Drier can be adjusted to the highest speed that any material will stand. What could do more?

DON'T BUILD BEFORE YOU KNOW

The Minter System Plants are Producing the Cheapest Building Material made in America today.

The Minter System

HOME OFFICE
Albany, Georgia

BRANCH OFFICE
215 Doctors Bldg.
Columbus, Georgia

exceed the rates to the same destinations from Galesburg, Ill. No damage has resulted to the Murphysboro firm from such prejudice in the past, Examiner Fleming said, but the Commission is advised to correct the present disparity in the rates.

GRUBER BUYS MENDOTA PLANT

E. V. Gruber writes that he has purchased the plant of the Mendota (Ill.) Brick & Tile Works. He says, "I have just a small plant now but have a wonderful future ahead. I intend to build it up as fast as I can, but it will take a lot of time. The plant is running at full capacity and orders ahead are enough to keep me going all summer."

NEW PLANT FOR McLEANSBORO, ILL.

McLeansboro, Ill., will very soon have plans for its anticipated brick manufacturing plant under way. E. C. Verbeck of Petersburg, who will assume active management of the McLeansboro Shale Products Co., is engaged in surveying and selecting the most practical location for the construction of a plant. Mr. Verbeck states that the plant will manufacture hollow tile and between 40 and 50 men will be employed.

SILO COMPANY CHANGES NAME

The Hoosier Silo Co., of Albany, Ind., has changed its name to the Hoosier Building Tile Silo Co.

FIGHT JUDGE MOLL'S RATES

Four clay products companies of Morgan County have launched a fight before the Indiana public service commission against freight rates on brick as proposed by Judge T. J. Moll in Marion County superior court. The companies asked that the commission delay its ruling in the rates until they could appear and show the rates to be unjust and discriminatory. The rate case was carried into superior court by certain brick companies following a public service commission decision. The petitioning companies were the Martinsville Brick Co. and the Adams Clay Products Co., both of Martinsville; the Brooklyn Brick Co., and the Indiana Drain Tile Co., both of Brooklyn.

INDIANA CONSTRUCTION PACE SLOWS UP

Brick manufacturers and dealers say they can begin to see some decline in new construction in Indiana because of high construction costs. It would appear that labor and lumber form two of the principal items in this increase. Within the past two weeks the state agricultural board abandoned nearly a million dollars worth of proposed construction because of high building costs. Indianapolis has been affected but little, as yet, the larger number of residences making up for the smaller number of business and industrial projects. In some other larger cities, such as South Bend, Terre Haute and Evansville, the situation has reached an acute stage more quickly.

KORNMEYER PLANT TO BE ENLARGED

The Charles Kornmeyer brick plant, Decorah, Ia., will not be run this summer—not for lack of patronage, but owing to the fact that the owner is not well. Improvements which will make it a bigger and better plant are planned for the summer months.

KANSAS RATES LOWERED

It has been announced recently that the Gas Belt brick producers and representatives of railroads have agreed on a reduction of one to seven cents a hundred on joint line hauls of brick. The recent agreement makes the freight rate for joint line hauls 8½ to 22½ cents a hundred. Plants affected by the agreement include, Coffeyville, Fredonia, Independence, Iola, Neodesha, Humboldt, Fort Scott, Weir, Pittsburgh, Buffalo and Cherryvale. The location of the brick plants is in Southeastern Kansas on the Santa Fe, Frisco, Missouri Pacific and M. K. & T.

"Entirely Satisfactory"

says Mr. H. R. Kreitzer, Secretary of the Columbia Brick Works, Portland, Oregon, in regard to their

MARION "RUST SPECIAL" Feeder and Mixer

Read his letter:

"We have been using the Rust Feeder for some time. We find that it gives us a better mixture of clay and a more uniform feed into the crusher, and has proved entirely satisfactory for our requirements."

Write for catalog describing the full line of MARION Clay Plant Equipment. No obligation to buy, but money in your pocket if you do.

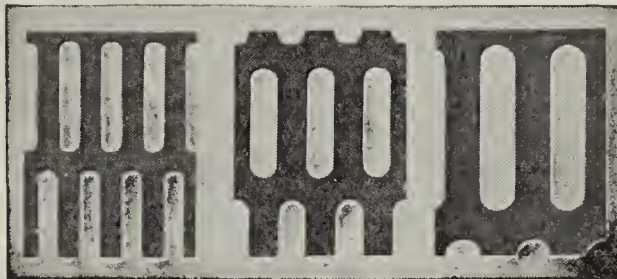
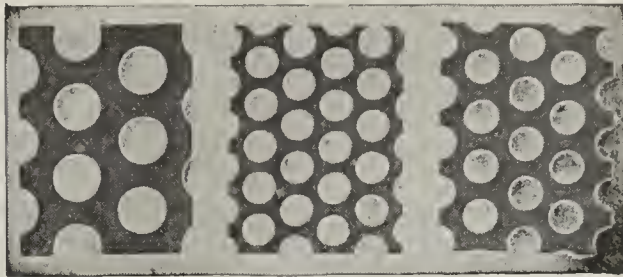
Marion Machine Foundry & Supply Co.

P. O. Box 395

MARION, INDIANA



Perforated Steel Screens



For Screening Clay, Shale, Sand, Gravel, Stone and Cement

All sizes and shapes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.

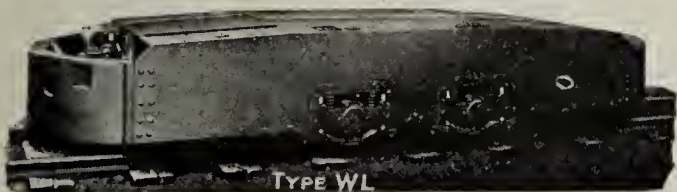
THE IRONTON STORAGE BATTERY LOCOMOTIVE

IN OHIO today, 62% of all storage battery locomotives are Irontons. Such dominance must mean more efficient and also more economical haulage. Let our engineering department discuss your transportation problems with you. There is an Ironton for every line of business—from 25-inch clearance upward.

The Ironton Engine Co., Ironton, Ohio

Branch Office

561-B Union Arcade Bldg. Pittsburgh, Pa.	905 14th St., Denver, Colo.
816 Robson Prichard Bldg., Huntington, W. Va.	409 Weber Road, Columbus, Ohio
1618 Arcade Bldg., St. Louis, Mo.	1308 American Trust Bldg., Birmingham, Ala.
511 Widener Bldg., Philadelphia, Pa.	711 First National Bank Bldg., Fort Smith, Ark.
	61 Marion St., Seattle, Wash.



TYPE WL

The Pilot



You Need in Kiln Work

Guess work and chances are eliminated the moment the pilot steps on the bridge. A carefully charted course is rigidly followed. You too—in your kiln work—can secure the benefits of following a carefully charted course. Before each burn, "map out your temperature route" to pilot your burners. Avoid the shoals of temperature variations. Eliminate loss of time and waste of fuel. How you can do this through the installation of Thwing Pyrometers will be gladly explained upon request.

THWING INSTRUMENT COMPANY
3347 Lancaster Ave., PHILADELPHIA, U. S. A.

Thwing

PYROMETERS



Resources—

FORTY-FOUR mines, scattered through the producing districts of six states, served by twenty railroads and having a developed capacity of 86,000 tons per day—

These resources, directed by an organization with forty years' experience in mining and distributing coal, are worthy of your consideration when selecting your source of supply.

An inquiry from you may result in a satisfying and permanent fuel connection.



PEABODY COAL COMPANY CHICAGO

Cincinnati Kansas City Deadwood, S. D.
St. Louis Omaha Kleenburn, Wyo.
Springfield Spokane, Wash.

PEABODY for SERVICE

WANTS BRICK PLANT EQUIPMENT

Fletcher Terrell, of 219 South Third St., Paducah, Ky., has announced that he is in the market for brick plant supplies and equipment.

NEW \$100,000 KENTUCKY COMPANY

The Owensboro (Ky.) Clay Products Co., capital \$100,000, has been chartered by John A. Bolger, Ben F. Medley and M. B. Fagles, all of Owensboro.

BUSINESS SLIGHTLY ON DECLINE

The Louisville (Ky.) Pottery Co. reported that business had been tapering off a little over the month, the flower pot demand being off at this season, while the demand for stoneware was not quite as good as it should be, in view of the fact that the fruit packers' season is close at hand.

BANNON SUFFERS FIRE LOSS

Fire breaking out in the sewer pipe plant of the P. Bannon Pipe Co., Louisville, Ky., destroyed a number of sheds on the night of June 3, some of which were storage sheds containing chimney pots and high grade hand made material. The loss is not believed to be over \$15,000, with \$20,000 as a limit. The loss was covered by insurance.

LOUISVILLE PRICES STEADY

Demand for brick and hollow tile, along with sewer pipe and general clay lines, continues quite active in the Louisville, Ky., district, and the outlook is good. Building operations continue heavy, and May building permits ran to the total of 354 in numbers, valued at \$1,422,700.

Prices in Louisville on brick lines are steady and firm, there having been no change since last summer, and no change is in prospect. Louisville brick plants are operating at capacity, it being merely a question of how fast brick can be put thru at this time. The amount of old brick on the market is not as large as formerly, resulting in better general demand for new stock.

BUILDING PLANT IN MAINE

Danville Junction, Me., will soon own a brick plant with a capacity of more than 3,000,000 brick a year. It is being constructed by a local contractor, T. F. Moreau. Operations will begin this season and 30 men will be employed.

SAVAGE MOUNTAIN ELECTS OFFICERS

The annual stockholders' meeting of the Savage Mountain Fire Brick Co. was held at the company offices in Frostburg, Md., recently. The following officers were elected: John A. Caldwell, president and treasurer; N. G. Caldwell, vice-president; W. F. Caldwell, secretary; G. A. Shuckhart, superintendent; G. R. Harvey, assistant secretary. These men also constitute the board of directors. The company had a fair year in 1922 and feels that 1923 will also bring a good volume of business.

BALDWIN BRICK CO. FORMED

The Baldwin Brick Co., of Boston, Mass., has been incorporated with an authorized capital of \$175,000, a report states. The incorporators are George L. Baldwin, of Ayer, Mass., George L. Weeks, and Susan R. Haynes, of Boston, Mass. The company has purchased the Littleton (Mass.) Unit & Brick & Tile Co. It is believed that a capacity of 80,000 brick will be attained.

RELIANCE OPENS ST. PAUL OFFICE

The Reliance Brick Co. has opened a sales office in St. Paul, Minn., at 550-552 Endicott Bldg., with John T. Harrington in charge.

ATLAS

EXPLOSIVES

for quarrying



ALTHOUGH large quantities of Atlas Ammite are used because it will not freeze under any condition, this Atlas product is more than a winter explosive. It is an all-year-round standby with quarry men—an explosive that is equally efficient, powerful and economical at any season of the year. Furthermore, Atlas Ammite will not cause headaches even when handled in enormous quantities. It keeps indefinitely under proper storage conditions—age has no harmful effect upon it. Let the Atlas Service Man show you how Ammite can be made to cut blasting costs on your work. Write nearest branch.

AMMITE

—the all-year-round explosive—

ATLAS POWDER COMPANY
WILMINGTON, DELAWARE

Branch Offices:

Allentown, Pa.; Birmingham, Ala.; Boston, Mass.; Charleston, W. Va.; Chicago, Ill.; Des Moines, Iowa; Houghton, Mich.; Joplin, Mo.; Kansas City, Mo.; Knoxville, Tenn.;



Branch Offices:

McAlester, Okla.; New Orleans, La.; New York City, N. Y.; Norristown, Pa.; Philadelphia, Pa.; Pittsburg, Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis, Mo.; Wilkes-Barre, Pa.



Isn't It Foolish—

To expect your firemen to fire your kilns using pitchforks?

It is just as foolish to expect your machine to turn out good ware with an improper die.

The 4x5-two cell, double stream, tile die No. 7797 illustrated, was made for The Malvern Fire Clay Co., Malvern, O. Ask them what they think of our dies.

Let our engineers plan your die so that your machine can make the highest grade of ware possible. The benefits will show up in your additional profits.

The LOUISVILLE MACHINE
MANUFACTURING CO.

LOUISVILLE, OHIO

**“IF IT’S
DIES
YOU WANT
WE
MAKE ‘EM”**

"HURRICANE" DRYERS



TUNNEL DRYER FOR INSULATORS

CUT COSTS

Every progressive manufacturer is looking for machinery to improve his plant and that is the duty of "Hurricane" Dryers.

Great savings in labor, steam and operating power and increased production, are things we can prove to you if given the opportunity.

Our experience covers a period of over 25 years and our Engineers are prepared to issue special plans where standard equipment will not do.

Catalogs on request.

Automatic Mangles
Automatic Stove Rooms
Tunnel Dryers
Electrical Porcelain Dryers
Sagger Dryers



235

**THE PHILADELPHIA
DRYING MACHINERY COMPANY**
3351 Stokley St. Philadelphia, Pa.

Western Agency: 1814 CONTINENTAL BANK BUILDING, CHICAGO

MINNESOTA TO HAVE NEW PLANT

C. J. Dodge is reported to be establishing a \$35,000 hollow tile and brick manufacturing plant at Moose Lake, Minn.

TO MAKE FACE BRICK

B. C. Dawson, who has a brick manufacturing plant in Jefferson City, Mo., will install machinery for the manufacture of face brick.

CAN'T GET SUFFICIENT HELP

The Wellsville (Mo.) Fire Brick Co. has been compelled to advertise for labor thruout that section of Missouri in which Wellsville is located. The plant is running full capacity and has been running short of the necessary help.

REBUILDS DRYER SHED

The Mound City Roofing Tile Co., 3301 Morganford Road, St. Louis, Mo., has constructed a new drying shed to replace the one destroyed in the recent fire at the company's plant. The new shed is 118 by 136 feet with tile roof. It cost \$10,000.

TO INSTALL NEW MACHINERY

B. C. Dawson, owner of a brick plant in Jefferson City, Mo., has announced that he is planning to install machinery for the manufacture of mat or facing brick. The Dawson plant is very well equipped and additional improvements are to be made from time to time as the business demands. Mr. Dawson reports that the plant has been running at capacity and has been able to supply all of the brick that has been demanded by Jefferson City contractors.

BUILDING NEW DRYER

The Fulton (Mo.) Fire Brick Co. is erecting a new drying room which, when completed, will increase the capacity of the plant 20 per cent., it is said. The dryer will be of the hot floor type.

FARBER PLANT INSTALLING TUNNEL KILN

The capacity of the Farber (Mo.) Fire Brick Co. is being doubled by the installation of a continuous tunnel kiln. Work on this new equipment, it is expected, will be completed by August 1.

SANFORD MAKING IMPROVEMENTS

George D. Jenkins, manager of the Sanford (N. C.) Brick & Tile Co., reports that the company has installed a waste heat dryer and that the plant is being equipped with the Boss system of burning. The capacity will be 30,000 to 40,000 brick per day when all contemplated construction is completed. Later, the company plans to make hollow building tile. When it is completed it will be a modern and well equipped plant.

AMERICAN TO REBUILD PLANT

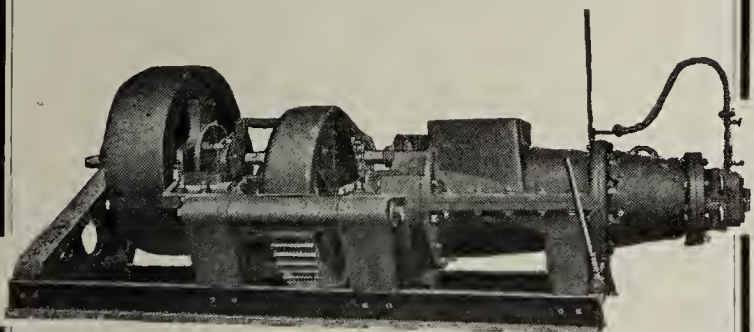
The American Vitrified Pipe Co., has completed plans for the rebuilding of the plant at Lisbon, Ohio, which will cost in the neighborhood of \$150,000. The plant will be much larger than the former plant, which recently burned down.

300 CARS TILE USED IN ONE BUILDING

Whitacre-Greer Fireproofing Co., Waynesburg, Ohio, has closed the contract for fireproofing material to be used in the construction of the Union Trust Co. building in Cleveland. The order received by the company is for 300 carloads of material to be delivered during the year. Each day ten or twelve carloads are used, according to John J. Whitacre, president of the company, who also said that more tile will be employed in erecting this building than any other in the country. At the present time the capacity of the Waynesburg plant is 30 to 35 cars of tile a day.

How Will YOU Increase PRODUCTION?

MANY brickmakers are finding it necessary to produce in eight hours what they previously produced in ten, and are re-equipping their plants to accomplish this result. More than ever before is it necessary for the successful brickmaker to operate his machinery from whistle to whistle—without breakdown or other stops. Powerful, keep-going brick machines, and dependable, sure-acting cutters are now vital necessities.



Model GC Auger Brick Machine

*A Powerful, Dependable Auger
Machine—a Continuous
Producer.*

E. M. FREESE & COMPANY
GALION, OHIO

DEPENDABLE MACHINERY OF PROVEN EFFICIENCY



"Firemen's Delight"

You would not choose a banker in whom you have no faith.

Your dividends depend largely upon the coal you burn in manufacturing your product.

Would it not be well to exercise the care in selecting your coal service that you do in selecting your banking service?

We mine and sell our coal with the idea always in mind that the success of our customers means our success. They, therefore, must have the combination of the best quality, preparation, and service possible.

*Our mines are located at Clinton,
Indiana, on the C. & E. I. Railroad*

We Invite Your Inquiries

Zimmerman Coal Company

609 Tribune Building

Long Distance Wabash 9921

Terre Haute,

Indiana



One Foot per Minute

ONE foot per minute is the speed of this Little Giant in drilling shot-holes for the Martinsville Brick Company at Martinsville, Indiana.

Although their ground is very hard, containing more or less kidney rock (conglomerate formation) they find a Little Giant Electric Drill to be a time and money saver.

Many other users of Little Giant Electric Drills in the brick and clay industry who have kept careful check on drilling time and costs have proved that Little Giants are indispensable for economical drilling operations.

Profit by their experience. Install one or more Little Giant Electric Drills for your shot-hole drilling and repair work and you will have one of your production problems solved.

Address nearest Branch for trial drill

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
Sales and *Service Branches all over the World

*Birmingham	Cleveland	*Los Angeles	*Philadelphia	Seattle
*Boston	Denver	*Minneapolis	*Pittsburgh	*St. Louis
*Chicago	*Detroit	New Orleans	Richmond	Tulsa
*Cincinnati	El Paso	*New York	Salt Lake City	
	Houston		*San Francisco	R-50

BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS • VACUUM PUMPS • PNEUMATIC HOISTS
GIANT OIL AND GAS ENGINES • ROCK DRILLS • COAL DRILLS

LITTLE
Electric



GIANT
Drills

SHIPPING MANY FIRE BRICK

The Columbus (Ohio) Fire & Face Brick Co., of which Emmet Howard is president and manager, reports an extraordinary demand for fire brick in all sections, but more especially in the East. Orders are coming from localities where artificial gas plants are being built as well as from furnace concerns. This company specializes in "Howard's Specials," which, it is claimed, is a high grade of fire brick.

METROPOLITAN WINS DISTINCTION

The Metropolitan Brick Co. of Canton, Ohio, has the distinction of being the only concern in the Canton district admitted to membership in the Rice Leaders of the World Association, which has for its purpose, the elevation of the standards of business, it has been reported. About 70 manufacturing plants over the country are members and become such only thru invitation. The association was founded ten years ago by Elwood E. Rice, of New York, who was recently in Canton as a guest of O. W. Renkert, of the Metropolitan Co.

NEW PLANT FOR CENTRAL POINT, ORE.

The plant of the new Southern Oregon Clay Products Co. will be located at Central Point, Ore. A five-acre site conveniently located within the town was donated free by the city and the company has accepted the offer. The site is next to the Southern Pacific Railroad and is near the quarries from which the company will obtain its raw materials. The development is not to be of a mushroom character, but will be carried on as rapidly as possible by utilizing home labor.

The Southern Oregon Clay Products Co. was organized by I. S. Sidel and C. W. Van Horne after the latter discovered the clay deposits. Both have had considerable experience in the ceramic industries and are personal friends. The clay is of good quality and will make a variety of products.

CHANGING TYPE OF PRODUCT

Hiram Swank's Sons of Johnstown, Pa., manufacturers of fire clay refractories, are converting their Clymer plant over to the manufacture of runner brick, sleeves, nozzles, and so forth. Operations began June 8. The capacity of the Clymer plant, says Ralph F. Swank, president, is sufficient to supply the needs for the class of refractories above mentioned for the entire United States. The plant is thoroughly modern and has excellent shipping facilities.

BUILDS SIXTH KILN

The sixth kiln is being erected at the plant of the Panhandle Brick & Tile Co., at Cliffside, northwest of Amarillo, Tex. This kiln will be fired very soon. Each kiln will take care of about 50,000 brick, giving a monthly capacity of 1,500,000, according to President A. S. Stinnett. Natural gas is used to fire the brick.

USES 12 MOTOR TRUCKS

The Dallas Pressed Brick Co., 2230 Commerce street, manufacturers of common brick, with a plant at Charlestown, nine and one-half miles east of Dallas, deliver brick direct from the kiln to the job. A fleet of 12 trucks is in use for this service. Paul Hunley, the manager, reports that business slackened somewhat during the latter half of May. Prices on common brick on May 24 were \$12.50 a thousand in carload lots, f.o.b. Dallas. This company recently added a new kiln and a new press to its Charlestown plant, which increased the capacity of the plant to 60,000 brick a day.

UTAH CONCERN RE-ELECTS OFFICERS

At the annual meeting of the Utah Fire Clay Co. of Salt Lake City, Utah, F. N. Cameron was re-elected president and

Standardization

THE keynote to successful production is STANDARDIZATION. In order to manufacture a consistent product, raw materials must be kept fairly uniform and processes remain constant.

The POIDOMETER assures the correct mix of clay and water by mechanical methods of proved worth, giving any desired mix for which the machine is set.

With the substitution of the POIDOMETER for the "approximate" method in mixing clays, one more highly variable element in the clay plant is brought to a definite point where further detailed attention is unnecessary, and the clay manufacturing industry takes a stride toward STANDARDIZATION.

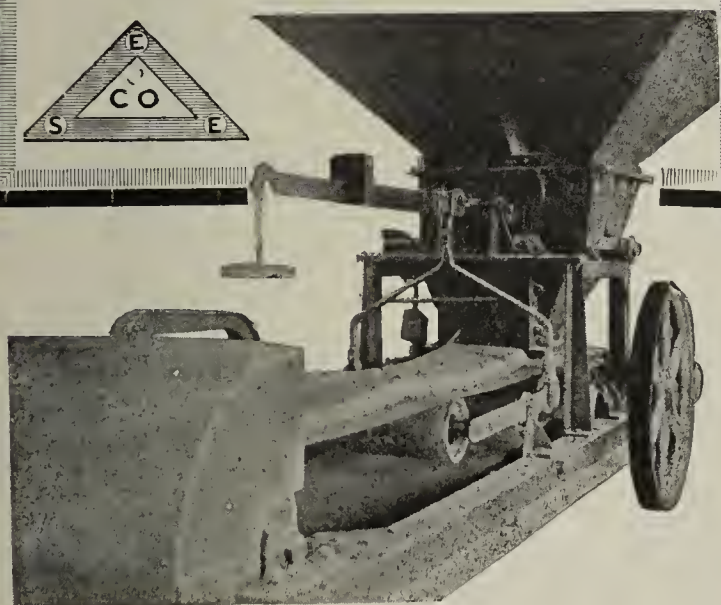


239

Write for
list of successful
installations

Schaffer Engineering & Equipment Company

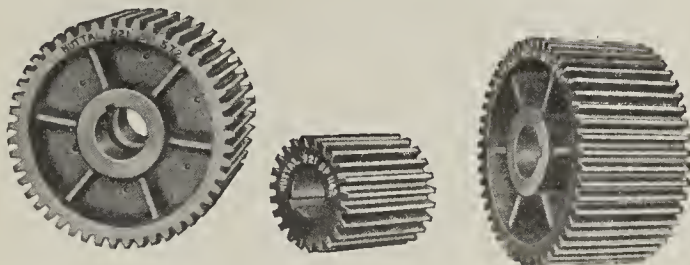
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Nuttall Service

to the

Brick & Clay Industry



Nuttall Cut Gears for any application in the Brick and Clay Industry are guaranteed to cost less than cast tooth gears to operate.

Nuttall Heat Treated Gears in any service are guaranteed to cost less than untreated gears because they last three to five times as long.

Nuttall Heat Treating Processes applied to many tools and appliances used in the Industry make them cost less because they make them last longer.

*You pay many times for
necessary plant better-
ments in unnecessary
high costs if you delay
installing them.*

R.D. NUTTALL COMPANY
PITTSBURGH  PENNSYLVANIA

Philadelphia
Office

430 Land Title Bldg.

Chicago
Office

2133 Conway Bldg.

Nuttall

We Publish Our Figures

BAY CITY Excavators

thruout the country have averaged
the following performance:

- clay capacity 25,000 to 100,000 brick a day
- dig, load, and mix for \$8 in a 10-hour day
- displace 12 men in some plants
- cost under \$3,000
- furnished with electric or gasoline power, caterpillar treads, or flanged wheels with rails; self propulsion.

**Economical for Stripping as Well
as Loading.**

*The smallest plant will benefit
in decreased labor costs by the
installation of a Bay City.*

THE
Bay City Dredge Works
BAY CITY, MICH.



a director of the organization. The directors of the past year were again elected at the session, they in turn naming the same officials which served the preceding year. Officers and directors of the company are: President and director, F. N. Cameron; vice-president and manager, A. E. Kimball; treasurer and director, J. A. Groesbeck; secretary and director, H. R. Waldo; L. S. Cates, Waldemar Van Cott, D. D. Moffat, Edgar S. Hills, and W. L. Biersach of Provo.

ROANOKE GETS NEW COMPANY

The Mason Creek Tile & Brick Co. has been incorporated at Roanoke, Va., it is reported, with a capital of \$25,000 with F. W. Garrett as president, and D. C. Graybill as secretary.

ROANOKE COMPANY CHANGES NAME

The Roanoke Webster Brick Co. at Roanoke, Va., has changed its name. It was formerly the Roanoke Brick Co., incorporated. D. J. Phipps is president, and J. C. Haley secretary.

KEWANEE STARTS WORK

Having had a very successful run last season, the Kewanee (Wis.) Brick & Tile Co. has started on its season's run with prospects for another busy year. Dominick Watky, of Port Washington, Wis., is manager of the yards.

JEFFERSON PLANT CHANGES HANDS

The Jefferson (Wis.) Brick & Tile Co. has been sold by the Steele interests to Charles F. Stengler, of the Stengler-Construction Co. The plant is located on the south end of the city and has been producing for many years. The property consists of 42 acres of land, plant, sheds, machinery, office buildings and dwelling.

BRENNER & GREBE TO MAKE CEMENT BRICK

Brenner & Grebe, building supply dealers of Kaukauna, Wis., and face brick salesmen extraordinary, are building a plant to manufacture cement face brick by the Shope process. These are the men who, thru a little work and propaganda sold several hundred thousand face brick yearly. They will stop selling face brick and will devote their efforts to manufacturing synthetic brick.

TO BUILD DRYER BUILDING

E. C. Guhr & Sons, proprietors of the South Milwaukee (Wis.) Brick Co., have plans ready for the erection of a large dryer building as soon as the weather will permit. The new building will be 200 feet long, 50 feet wide and 30 feet high. It will be laid out so that trucks for hauling the brick can run in and out of it at almost any point. The company is also awaiting the arrival of some large machinery which has been shipped from the East. It will probably take another month to get this machinery in position for operation.

SAVORDS BUY LADYSMITH PLANT

Savord Brothers, of the Farmers' Commission Exchange, Ladysmith, Wis., have purchased the business and plant of the Ladysmith Brick & Tile Co. The plant is located about two miles east of Ladysmith and has an excellent supply of clay. It is about eight years old, has been remodeled and a force of 25 men has been employed at the beginning of production. The first brick manufactured by the new operators will be shipped during June, and a seasons' production of 1,500,000 brick is planned by George Savord, manager.

WILL ENLARGE MANITOWOC PLANT

Incorporation papers have been filed at Manitowoc, Wis., for the Northern Clay Products Co., a \$60,000 concern, which

Accessibility

- To Market
- To Raw Material
- To Fuel
- To Labor

THESE factors, coupled with the unworked high-grade kaolins, china clays, bauxites and fire clays abundant in Georgia, make that state ideal for prospective clay plants.

Dr. R. T. Stull, formerly chief ceramist of U. S. Bureau of Mines, is strong in his belief in Georgia clays. He states:

"Research and actual installation tests in malleable and electric furnaces, made possible by the Central of Georgia Railway, have proved conclusively the worth of the Georgia refractory clays so essential to all industries. Tests and actual practice have also demonstrated that Georgia kaolins have a far wider field of usefulness in the pottery, filler and allied trades."

Write for complete data.

J. M. MALLORY
General Industrial Agent

**CENTRAL of GEORGIA
RAILWAY COMPANY**
SAVANNAH, GA.



AUTOMATIC MOULD- RELEASE DRYER

*A Paying Short Cut in
Insulator Production*

RECEIVES filled moulds and delivers empty moulds at presses.

Delivers conditioned ware close to trimming tables.

Produces ideal condition of ware for trimming — always uniform.

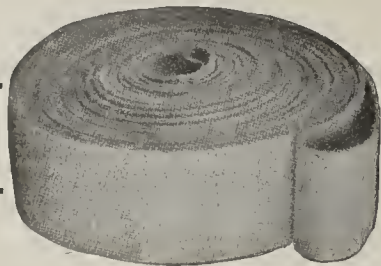
Reduces drying time—the moulds being turned several times a day.

Reduces handling of moulds, keeps them in uniform condition, increases their life and cuts down the number required.

Cuts down labor motion and greatly increases production on presses.

Saves a tremendous amount of floor space.

PROCTOR & SCHWARTZ, Inc.
PHILADELPHIA, PA.



ONE
**GREEN DUCK
BELT**
SELLS ANOTHER

A well-known Kansas City manufacturer (name on request) states:

"We were so favorably impressed with the first Green Duck Belt that we have purchased another."

Green Duck Belts stay soft and pliable, and do not get sleek or slip on the pulleys as we have observed in other canvas belts.

If you have a belting problem — driving or conveying—Green Duck will solve it.

Write for samples and prices.

The Allied Belting Co.
GREENVILLE, OHIO



has purchased the holdings and plant of the Leach Clay Co., formerly the Manitowoc Clay Products Co., and will enlarge the plant and operate it on an extensive scale. A. R. Trace, former Outagamie County man, is said to be head of the new company. Negotiations for purchase by the company of the Leach plant were closed, the deal involving about 72 acres of land and the brick plant formerly operated above the Wisconsin Central property up the river. The entire holdings of the Leach company were taken over.

The new company, incorporators of which are L. B. Lange, C. M. Kellerman and H. M. Sweet, plans to enlarge the plant operated by the Leach company and to engage in manufacture of common and face brick, hollow tile, drain and sewer pipe, flue lining, fire proofing and a general business in all lines of clay products. It is said that the company has contracted for a large amount of additional machinery and that the new yards will be the best equipped in the northwest. Work on remodeling and improvement of the plant is now under way and will be rushed as rapidly as possible to insure early operation. Mr. Trace, who will manage the plant, is a practical clay products man of years of experience and imbued with the modern day idea of progress.

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The Port Credit (Ont.) Brick Works was reopened on May 7.

INCORPORATE ESTEVAN BRICK CO.

Estevan (Sask.) Brick Co., Ltd., has been incorporated with a capital of \$175,000.

COMPANY NEEDS MACHINERY

The Granby (Que.) Clay Products, Ltd., is interested in equipment for the manufacture of brick. A. Labelle is purchasing agent.

MOVES OFFICES

Canadian Fireclay Products, Ltd., manufacturers of floor tile, with plant at New Toronto, has moved its Toronto office from 1544 King Street west to 364 Bay Street.

Among Our Advertisers

Details Concerning New Models, Changes in Personnel, News Matters, etc., That Our Advertisers Believe Will Interest Our Readers

L. B. Foster Co., Inc., main office in Pittsburgh, Pa., have moved their New York office into very much larger and commodious quarters on the 14th floor of the Tribune Bldg.

✻ ✻ ✻

The Webster Mfg. Company of Chicago announces the appointment of Robert T. Pierce as manager of their New York Sales Office at 90 West Street. He succeeds the late Glen N. Porter, whose death occurred March 31st, 1923.

✻ ✻ ✻

The Link-Belt Company of Chicago and Philadelphia announce that Mr. L. M. Dalton has succeeded E. J. Burnell as manager of the Boston branch office. Mr. Dalton's appointment comes as a reward for merit shown, he having shown himself in the past an able and competent engineer. Mr. Burnell resigned his post to enter business for himself and he carries with him the best wishes of not only the Link-Belt Company but those of his many business associates and friends.

✻ ✻ ✻

The Cleveland office of the Link-Belt Company has changed from Room 429 to Number 329, and the building in which they have so long found quarters has again changed hands and names. In the future the address of the Link-Belt Cleveland office will be No. 329 Rockefeller Building.

The Leading Clay Journal of the World

BRICK AND CLAY RECORD

Dedicated to Progress in the Clay Industry

Drain Tile Manufacturers Should Organize

THERE ARE approximately 450 manufacturers of drain tile in this country. Manufacturers of paving brick, face brick, hollow building tile and fire brick are much fewer in number. Yet these last mentioned manufacturers all have strong national associations which take care of the wants of the manufacturers individually and collectively. Why haven't the drain tile people become organized? Is it because the drain tile manufacturer is less progressive than other clay products manufacturers? Or, is his product such that it can not be advertised successfully and that a strong organization could, after all, do little for him?

Neither is the case. As in other instances there has never been a real, definite movement, fostered and pushed by progressive and energetic men to establish a publicity organization among drain tile manufacturers. What the industry apparently needs is for a few energetic manufacturers to get behind an organization movement and push it to success.

The drain tile industry needs an organization as badly as any other group of manufacturers in the clay industry. It needs an organization which can give real service to the farmer; which can tell him how, when and where to do his tiling; which will give him all necessary engineering advice and which will show him how to finance a drainage project.

The drain tile industry needs an organization for another purpose than those mentioned and that is, to safeguard its interests against the encroachments of competitive products. It needs a strong publicity campaign to show why clay drain tile are the best drain tile, and to counteract the influence which other products are bringing to bear upon the farmer. This is the age of organization and advertising and no industry can make its greatest success if every man works separately by himself. It requires a strong association of manufacturers to safeguard an industry's interests.

The drain tile industry has admittedly not made a great deal of money in the

past and some manufacturers are loath to invest any money in association work. They are inclined to wait for better times and more profits before going into publicity work. This idea is fallacious. If the drain tile industry engages in the correct kind of publicity now, the profits will take care of themselves. You can't wait until you have made money before you hire a salesman, you have got to sell your products before you can reap your profits.

✻ ✻ ✻

Praise the Paving Brick Superintendents

OLD RIP VAN WINKLE had nothing on the clay industry! In fact, when we come to think about it, the matter is quite reversed. The clay industry was asleep for considerably more than 20 years. We wouldn't dare to say this if we could not conscientiously and joyously state that the industry has awakened from its long sleep and for a number of years has been exceedingly wide awake indeed. Every day there are evidences of this in the new movements constantly being set under way. It is a pleasure to sit in the editorial rooms of Brick and Clay Record and watch the unfoldment of this great industry.

Inspiration from the above was gotten from the announcement of the organizing of a Superintendents' Club within the National Paving Brick Manufacturers' Association. This is a club of plant superintendents which will meet periodically, giving the men an opportunity to discuss intimately their own peculiar problems. It is an organization which will help to create better jobs for its members and in consequence help the plants whose superintendents are members.

In effect, this organization will do the same things for those who belong to it as the Refractories Accountants' Institute does for that class of men. This is an organization formed by accountants of those plants that are members of the Refractories Manufacturers' Association. It has been highly successful and its members are very enthusiastic about their organization.

We wish to commend the progres-

sive spirit of the paving brick superintendents and express the hope that their good example will inspire others to "go and do likewise."

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"Seldom Seen, Soon Forgotten"

WE HAVE HEARD a lot about Los Angeles recently and will hear even more now that it is definitely assured that the next common brick convention will be held in that city.

There is, however, one thing which we have not heard before and that is a little lesson in selling which the Los Angeles manufacturer can give us. This lesson can be gleaned from the advertising policies of the Los Angeles Pressed Brick Co. and the Los Angeles Brick Co.

As every manufacturer knows, business on the coast is so good that the clay industry there can not supply the demand. Despite this fact, the two mentioned companies never stop advertising their products, and every Sunday, through the medium of the daily press, they give the public a chance to read about Los Angeles-made brick and tile. Advertising is a form of selling, and a very efficient form which many manufacturers overlook. It shouldn't be done without serious study because haphazard advertising brings haphazard results. There is comparatively little value in spasmodic advertising and in order to get the greatest returns from the investment, publicity should be continuous. No contractor ever drove a pile with one drop of the hammer. It takes repeated blows to accomplish the desired results.

There are some manufacturers who will not advertise when their plants are operating at capacity because they think it isn't necessary. There are others who will not advertise because they believe everyone knows their product well. Both these manufacturers forget that the public is the most fickle element in all creation and to nothing else is the proverb, "Seldom seen soon forgotten" more applicable. The best and cheapest business insurance you can buy is advertising of the right kind.

Movie Will Stimulate Home Building

Shows How Real Home Should Be Built—Film to Be Exhibited Everywhere—Features Solid Brick Home—Will Bring Business to Brick Industry

BECAUSE IT EXPLAINS and illustrates practically everything which a prospective home owner should know, from the financing to the furnishing of a complete home, the Atlas Educational Film Co.'s movie, "The Great Idea" is destined to become the most successful Own Your Home propaganda yet devised. This film has just been completed and is ready for release. It will be shown in every city, town and village in the country where the people evince a desire to see it. A complete story regarding the nature of the film was published sometime ago in Brick and Clay Record.

Reviewing briefly what the film is and its purpose, it is an interesting story of a family living in an apartment and suffering all the annoyances and inconveniences which are common to all flats. There are various angles to this story, which ends with a completed "Home of Their Own". The value of the film lies in the fact that it shows people that owning a home is not by any means an impossible proposition, nor does it mean a large amount of capital to finance the project.

Will Stimulate Home Building

It is the opinion of the producers and the business men who backed the film that it can be made into a wonderful piece of advertising, which will stimulate home building in a marked degree. The plan is to enlist the support of the Chambers of Commerce in the various towns of the country, the business men, the newspapers and the moving picture houses. When all the business interests in a town get behind this film and make the most of its advertising possibilities, it should give a tremendous impetus to home building in the community.

Altho every business man who is at all interested in any part of the house be it the structural materials entering into the construction or any of the myriad of home accessories and furnishings necessary for the completed home, will be benefited, the brick manufacturer has special cause to investigate the possibilities in the film for him. The house shown in the film is a splendid boost for brick and utilizes that material to its fullest extent. All walls including even foundations are solid brick construction with face brick front. In the film itself, especially in some of the sub-titles there are splendid arguments in favor of brick construction.

Will Enlist Newspaper Support

The Atlas Educational Film Co. has designed a complete supplement for use by newspapers which is intended to create interest in their film. This supplement contains two full pages of brick homes taken from the American Face Brick Association's booklets. It has other splendid brick propaganda such as a story on the Home of Brick, written by Louis Grilk of the American Face Brick Association, explaining the advantages which a brick home offers. This offers the local brick manufacturer a splendid chance to get in a boost for his own product by advertising in that issue of the newspaper in which the Own Your Home supplement is published.

The brick manufacturer who is interested in having this film shown in his town, should communicate either with the American Face Brick Association or with the Atlas Educational Film Co. of Oak Park, Ill.

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DETERMINE STANDARD FACE BRICK SIZES

At a meeting held in Washington on June 21 the matter of standardizing face brick sizes was discussed and



Interior and Exterior Views of the Home Which Is the Subject of the Film "The Great Idea."

The View on the Right Shows a Scene from the Picture.



a definite step taken toward establishing the size $8 \times 2\frac{1}{4} \times 3\frac{3}{4}$ inches as standard. The following resolution was adopted:

Whereas, in the manufacture of face brick and common brick an infinite variety of chemical combinations in the clays used is encountered, and in addition, science has as yet been unable to devise any method for the exact distribution of heat thruout any character of kiln, it is necessary to recognize, in attempting to standardize dimensions, that there must be variations in size account the variations in shrinkage, and that any dimensions determined upon as standard must be understood as being approximate and being the average dimension of an entire unit of shipment, and

Whereas, the variations of dimensions of brick units have, for centuries been successfully absorbed in slight variations in the size of the mortar joint, and whereas, a large percentage of the face brick now being produced are approximately 8 inches long, $2\frac{1}{4}$ inches thick and $3\frac{3}{4}$ inches wide in the case of textured face brick and common brick, or $3\frac{7}{8}$ inches wide in the case of smooth face brick, and whereas, these sizes are practical from the point of view of the architect, the engineer and the manufacturer.

Now, therefore be it resolved that this meeting of the several organizations and Government Departments which are represented, do accept and endorse the above approximate sizes as being best fitted to the use for which material is intended, and be it further resolved that it is definitely understood that the service of straight shades of any face brick and all grades of common brick, the average dimensions must frequently show slight variations from standard sizes, it being clearly comprehended by all that for efficiency and economy, the manufacturer must aim at standard dimensions for the average of his entire production.

* * *

COMMON BRICK DIRECTORS MID-YEAR SESSION PLANS CONVENTION

Mid-year meeting of the board of directors of the Common Brick Manufacturers Association of America was held at Hotel Cleveland, June 12. Review of the work done during the preceding six months was had, and plans for the last half of the year were laid.

Foremost among these will be the arrangement for the annual convention. Los Angeles was selected as the place, and details as they have been arranged thus far were explained to the members by Secretary Ralph P. Stoddard, and Charles A. Bowen, assistant to the president. The convention will be held during the week of February 10.

In point of numbers, interest and every other way, it already promises to be the biggest gathering of its kind ever held. One of the features will be special trains, several of them, which will leave from Kansas City and Chicago on February 2, meeting at some point in Kansas, and running together from that point to Los Angeles. The trip has been so arranged that all important cities and every interesting thing the country has to show west of the Mississippi will be seen by the conventionists.

An added and most important point will be that the convention is not confined to members of the association, but everybody among their friends whether connected with the brick industry or not, will be permitted to go on the trip. The convention itself will be unique, in that only two-hour sessions will be held daily, and the rest of the time will be given over to seeing what the California city and surrounding country looks like. This will mean that the most business and the most enjoyment will be had by the visitors.

During its meeting in Cleveland the board of directors approved the action of the executive staff in promoting the proposed bricklayers apprentice schools, as well as new plans

for enlarging the membership and extension of the association itself.

At this meeting L. S. Collins, Los Angeles, was elected fourth vice-president, to take the place of D. F. Weber, Chicago, who resigned.

Following the meeting the members were entertained at dinner at the Union Club.

Directors who attended the meeting, coming from all parts of the country, were: Max D. Almond, Corsicana, Tex.; Ernest S. Barkwill, Cleveland, O.; Chas. H. Bryan, Detroit, Mich.; John P. Cahoon, Salt Lake City, Utah; Wm. N. Cary, Albany, N. Y.; L. S. Collins, Los Angeles, Cal.; F. C. Ervin, Denver, Colo.; Charles Francis, Muskogee, Oklahoma; Tom W. Green, Sioux City, Iowa; Warren Griffiss, Baltimore Md.; Otto C. Oehler, St. Louis, Mo.; George A. Parry, Boston, Mass.; J. A. Pugh, Norfolk, Va.; William Schlake, Chicago, Ill.; E. C. Shimer, Allentown, Pa.; Thos. E. Wilson, Pittsburgh, Pa.

* * *

TO ELIMINATE 23 HOLLOW TILE SIZES

At a meeting held June 19, 1923, at the Department of Commerce, the Standards Committee of the Hollow Building Tile Association reported to the Department's Division of Simplified Practice, the results of a survey which the Association had made of existing varieties in types, sizes, and weights of hollow building tile.

The survey showed 36 different sizes—each made in a wide variety of weights. The Committee recommended the elimination of 23 of the 36 sizes, and the retention of 13 as "standards" of the industry. A standard weight, with a permissible variation of five per cent. over or under the standard weight, was also recommended for each of the 13 sizes retained.

The Committee requested the Department of Commerce, thru its Division of Simplified Practice, to call a general conference next October of manufacturers, architects, engineers, contractors, and builders to discuss the general adoption and use of the recommended standard sizes and weights.

Those present at the meeting were:

E. R. Sturtevant, Fraser Brick Co., Dallas, Tex.; H. R. Straight, Adel Clay Products Co., Adel, Ia.; H. C. Downer, Malvern Fire Clay Co., Malvern, Ohio; P. H. Bevier, National Fire Proofing Co., New York; C. W. Dixon, Columbus Brick & Tile Co., Columbus, Ga.; F. J. Huse, Research Engineer for the Association, Chicago, Ill.; E. W. McCullough, Mgr., Fabricated Production Department, Chamber of Commerce of United States, Washington, D. C.; Ray M. Hudson, Division of Simplified Practice, Department of Commerce.

* * *

NEW YORK BRICKLAYERS GET \$12

Bricklayers on strike in New York since May 21 have succeeded in making employers capitulate to their demands for a higher wage. On June 20 an oral agreement was made between the bricklayers and the Mason Builders' Association. This agreement grants the full demands of the bricklayers' union in the New York metropolitan district. The demands call for a two-year agreement with wages at \$12 per day. When the bricklayers first went out on strike, employers made a counter offer of \$10 for three years but the offer was not accepted.

It is generally known that during the strike bricklayers for the most part found work at wages of \$14, \$16 and \$18 per day.

There was no slowing up in the movement of brick shipments during the strike as most of the material was shipped to the Bronx.

Construction and Adjustment of Dies

An Excellent Discussion of This Subject
Which Offers Many Helpful Suggestions to
the Manufacturer Who Has Die Troubles

H. F. Dingledine

National Fireproofing Co., Aldershot, Ont.

DIE CONSTRUCTION and adjustment present a most interesting problem. Dies for hollow tile may be roughly divided into two general types, flat and tapered. Flat dies are never lubricated and are found to be suitable only under certain unusual conditions. Tapered dies may be lubricated with steam, oil or water, but most hollow tile dies are of the tapered non-lubricated type. The angle of taper seems to depend largely on the individual clay and no fixed set of rules may be said to exist. To establish the correct angle for a given clay, the surest method is to start with a die having a small amount of taper and gradually increase the angle of taper to the point where its column speed is greatest. This may be said to be the correct angle, for when this angle is passed the column speed falls again. When this angle is once established, it will be found that it is fairly constant with a given clay for different shapes. However, when building dies the angle of taper should be kept somewhat smaller than that found to be best, for several reasons:

1. To allow for future wear.
2. Since no taper is better than too much taper, as a die with too much taper is harder to adjust and more sensitive to slight changes in clay and tempering.
3. Since the remedy involves heavy overhanging baffle plates at the back of the die, which tend to slow up the column and disturb the compactness of the clay in the side walls.

Build Dies Light

It is important to build dies with the shortest issue and lightest construction feasible, as light construction generally produces fast dies. Light short issue dies also cause less trouble, are easier to adjust, are lighter to handle and consume far less power. Unfortunately the raw material is the deciding factor. Some clays will run soft and slip thru the die easily while others run hard or have to be run very stiff. Particularly is this the case with sandy clays. Hard running clays require heavy dies with strong bridges and posts and any increase in the thickness of metal back of a die acts as a baffle to the clay. It is, therefore, important that the raw material be studied carefully, so that the lightest construction consistent with safety may be used.

Distribute Interference Evenly

Assuming that we have reduced to a minimum the interference at the back of the die, in the shape of bridges and posts, the next step in die design is to distribute this interference as evenly as possible over the back of the die, thus balancing the die and causing the clay to flow evenly. If this is not done the concentration of metal at the back of the die will result in interference to the clay flow causing a slow area at that point. With a little study and experimentation, it is often possible to improve a die greatly by rearranging the bridges and posts.

Another frequent trouble is cracking in the dryer due to bridges being too near the back of the die. The distance necessarily depends on the nature and the temper of the clay,

and the shape of these bridges. Some clays will pass around bridges and unite under them perfectly within a very short distance; other clays are exceedingly difficult to unite and require considerable compression and distance under the bridge. The remedy is to move the bridges back, use softer clay or serrate the bottom of the bridges.

Friction Greatest at Corners

In dies with square corners, it is generally found necessary to give the area around the corner more clay as friction is greatest at the corners of a die. This is accomplished by giving the die slightly more taper around the corner or slightly baffling the straight sides.

The type of scoring used on a die has a considerable bearing on its speed. Since scoring is invariably put in the outer faces of hollow tile where die friction is greatest, its tendency is to further drag the outer walls. It follows that the entire die must be slowed down to conform to the speed along the grooved walls. Therefore, the type of scoring presenting the least friction is the most desirable from point of die speed, and it has been found that scoring grooves running clear thru the straight finish or issue of a die with little or no compression are the most ideal and produce smoother scoring than short scoring projections or scoring plates fastened on the front of the die. They cost more to build and wear out faster, but much of this objection can be overcome by fitting into the face plates scoring liners which are machined from tool steel and case-hardened. Lining the straight part of the cores with steel is also desirable, as it increases their life and keeps the thickness and resulting weight of the tile to closer limits.

Difficulties Due to Differential Flow

Differential flow due to die friction is fortunately not serious in most hollow tile shapes, since the average die is fairly symmetrical and the webs and shells are thick, but in certain peculiar shapes where great thickness of shell is desired, it becomes so serious that resort must be had to lubricated dies. This type of die is well known to stiff mud brick manufacturers as practically all stiff mud brick are made with lubricated dies to facilitate the flow of the corners and outside shell. The hollow tile lubricated die is, however, far more expensive and harder to adjust properly than the brick die due to its non-lubricated cross webs or rather its non-lubricated bridges and cores.

Die Adjustment Big Subject

Die adjustment is a subject to be discussed in private as it is, without doubt, the source of more animated disputes and threats than any other subject we can think of. In reality, it should not be discussed at all (except between the pugger and the die mechanic), as theoretically, a die should be so designed as to require very little adjustment. Nevertheless, it somehow happens that the observer is sometimes forced to witness the sad spectacle of good theory gone wrong and with tears in his eyes admit the triumph of a hat full of rusty bolts, slugs, washers and pieces of chain.

Send in Your Ideas About Dies

This is part of a paper read by H. F. Dingledine before a meeting of the Canadian National Clay Products Association and treats of a subject which is of the greatest interest to every manufacturer.

Brick and Clay Record prints Mr. Dingledine's remarks about dies here in order to open a discussion on the subject. The editors invite everyone who has some ideas on the construction and adjustment of dies, to send them in. This will be in the nature of an open forum for discussion on this subject, from which it is hoped much will be learned.

The practice of adjustment becomes, therefore, a necessary evil, as very few dies are ever correctly designed in all respects, and even if they were, ordinary wear would sooner or later make adjustment desirable if not exceedingly necessary. The usual adjustments consist in baffling certain fast running areas of the die by means of fastening flat plates to the back of the die or hanging washers on bolts from the bridges or from cross bars between the bridges, as well as serrated plates or washers projecting or suspended to break up certain tendencies to show die marks, and so forth. This procedure might be called destructive adjustment as the gross result of such adjustment is a general slowing up of the die, whereas constructive adjustment would be taken to mean altering the die to correct its faulty tendencies without decreasing its speed. The latter is of course preferable where it can be done, but it generally happens that the die is worn out before sufficient leisure time has been found to make the desirable alterations.

In all seriousness it may be said, however, that it is time well spent to study the action of adjusted dies by the nature of the adjustments necessary and try to overcome the worst faults first in the design of the new die for that particular shape, for after all die perfection can be approximated by careful application.

* * *

A. F. B. A. DIVISIONS TO MEET JULY 11

A joint meeting of the Pittsburgh Buff and Gray Groups with the Ohio Red Group of the American Face Brick Association is scheduled to be held at Columbus July 11 and 12. The first day will be taken up with the business session and the second day with a visit to the face brick plants in the Shawnee district consisting of the Ironclay Brick Co., the Claycraft Brick Co., and the Straitsville Impervious Brick Co. A large crowd is expected at the meeting.

* * *

BRICKLAYER SCHOOLS COMMITTEE

First move in the definite national plan for developing and supplying the brick trade with capable craftsmen, has taken shape in the appointment of the committee that was authorized at the conference held in Cleveland on June 5 to formulate arrangement for apprentice bricklayers schools in all parts of the country.

Members who attended and those who were apprised of this move thru the Brick and Clay Record and other public prints, will recall that the chairman, Ralph P. Stoddard, secretary of the Common Brick Manufacturers Association, was authorized to write the story of the conference, appoint the committee, and submit the report to its members for

their approval. This has been done and the committee will comprise leaders in every branch of endeavor that can aid the bricklayer school program.

How important this movement is may be recognized from the fact that the Associated Press has sent out stories to all daily newspapers in the country, and with few exceptions these have printed something about the plan. The report is expected to guide the committee in fixing on the most important factor they will have to deal with—how many bricklayers actually are needed.

The committee includes:

E. A. Roberts, Cleveland Builders Exchange, and representative of the National Association of Builders Exchanges, general chairman.

D. Knickerbacker Boyd, Philadelphia, architects.

George A. Bass, Hydraulic-Press Brick Co., St. Louis; J. S. Sleeper, secretary, Hollow Building Tile Association, Chicago, materials.

Thomas R. Preece, vice-president, Bricklayers International Union, Indianapolis, labor.

General R. C. Marshall, Associated General Contractors, Washington; G. F. Meyne, National Association of Building Trades Employers, Chicago; W. A. McGarvey, Mason Contractors Association of the United States and Canada, employers.

G. W. McGarvey, Federal Board of Vocational Training, Washington; E. L. Bowman, teachers college, Institute of Educational Research, Columbia University, New York City; Alfred J. Hartman, Carnegie Institute of Technology, Pittsburgh; Howard L. Briggs, director of vocational training, Cleveland public schools; Fred C. Smith, Y. M. C. A. United Schools, New York City, educational.

* * *

NORTHWEST INVITES TO SUMMER MEETING

The Pacific Northwest Clayworker's Association of Seattle, Wash., in announcing the summer meeting, to be held August 25, 1923, extends a most cordial invitation to clay products manufacturers. The subject of drying especially will be discussed. Here is what our Northwestern friends say:

"We invite drying specialists to come this way on their summer vacation. One big meeting devoted to one big subject of vital importance to all clay manufacturers, in the one big vacation center of the country in the one big vacation time. Seattle and the Puget Sound country furnish an ideal location for a summer vacation: cool spring-like weather, salt water, fresh water lakes, snow covered mountains, big deep cool forests, fishing, boating—any sport you wish; any variety of accommodations—metropolitan life in Seattle to camps on the beaches and mountains. Drive out in your car, visit the big plants of the Pacific Northwest and see the wonderful possibilities for future development in all branches of the clay and ceramic industry.

"Our association has a membership of over 50 and is only six months old. 70 attended the last general association meeting and over 30 came to the Brick, Tile and Sewer Pipe Division meeting held June 2. For particulars, address Hewitt Wilson, Secretary, Department of Ceramic Engineering, University of Washington, Seattle.

Marketing Face Brick

The Problems Involved and What Must Be Done to Sell More Face Brick—By a Manufacturer with More Than 20 Years Experience

J. M. Adams

General Manager, Ironclay Brick Co., Columbus, Ohio

A MOOTED QUESTION at this time is the marketing of face brick. There are some manufacturers who think that the way to sell their product is to sell thru their own representatives and not to dealers. There are others who think that the best way to sell face brick is thru a great multitude of dealers or agents. I am inclined to believe that the coming method of selling face brick will be thru the dealer. I do not mean that the big jobs cannot be quoted direct, but that in the future it will be necessary to cultivate four or five thousand building material dealers thruout the country. Up until a few years ago it was not necessary and the result was that there were a multitude of towns of 15, 20 and 25 thousand people, in which you could not buy a brick mantel. Ten years ago you could not buy a brick mantel in the city of Columbus. They would take the order and have it shipped in.

There are two classes of dealers. One I call a brick merchant. This man buys brick, places them in his warehouse and sells them like any other merchant sells goods. The other secures a sample of brick and goes out and tries to get orders. He is what I call a brick peddler.

How They Used to Sell Face Brick

When I first commenced the brick business in Columbus we had a room about 12 feet square, a table with four or five samples on it, a desk and a typewriter and we were paying \$10 a month rent. All that the salesman had in the way of equipment was the sample in his arms and a street car ticket or two. He would go out, board a street car and go to see the customer. Or if he already had a customer he would take him along on the street car and was really extravagant enough to buy the tickets. That was selling brick 20 years ago.

If a contractor was building a house and he lacked a dozen brick, or found that he needed that many more than he had estimated to finish the job he would have to wait for a week or ten days to get the brick into town.

Other Materials Supplanted Face Brick

Are you aware that there were more face brick sold in 1912 than were sold in 1917? The cement manufacturer, the lumberman, the stucco dealer all became very active, and the result was a vast expenditure of money by the cement manufacturer, the lumber manufacturer and others in exploiting their respective products. The cement manufacturer was not only advertising his product very largely, but he was putting it into the warehouses of literally thousands of building material dealers thruout the country and when they had invested their money in cement they were anxious to move that cement.

Would you go to a lumber dealer for lumber if you knew he did not have any lumber in his yard? Suppose you would go to him and say, "I want to buy a thousand feet of sheathing or siding," and he would say, "Certainly, it will cost you so much; I will send your order in and it will come

by local freight and you will get it in about three weeks." Perfectly absurd, and yet that was the condition of the face brick business of this country until recent years. We accepted the order and mailed it to the factory and they shipped by local freight—paid more than twice as much for freight and packing in addition, to say nothing of the delay.

Go After Small Town Business

So I believe that the development of the face brick business in this country must look towards its proper distribution. It is easy enough to go out and sell a particular job, but the small amounts of brick, the brick mantel, the little brick front that will take 500 or 1,000—in all of the small towns we are losing the sale of these brick because the dealer does not have them in stock. And if a man does not have a certain thing he always has something just as good, you know—and "something just as good" is lumber, cement or stucco. And that is the reason there has been such a tremendous development in the lumber business; it is because the dealers in the country are going on the basis that it is



J. M. ADAMS

necessary to have something to sell before they become merchants.

A Real Brick Merchant

I wish to say that we have right at this minute in this room a man from Detroit whom I call a real brick merchant. He has in his warehouse today I suppose not less than a million and a half and maybe two millions of face brick. He can furnish out of that warehouse a residence or a flat that

Editor's Note.—This article is from a talk given by Mr. Adams before the Ohio Red Division of the American Face Brick Association.

may take 50,000 brick, and they do not have to wait a minute—just call up and in an hour there is brick on the way to start that building; and what is the result—the result is that Detroit is a greater consumer of brick for the population than any other city in this country and more brick are carried in stock in Detroit than in any other city in the country of equal size.

If we could get a real brick merchant in every city and town of any importance in this country, we as manufacturers would be selling tens of millions, yes, hundreds of millions more face brick than we are selling today; and this is the proposition that is right now before us.

A. F. B. A. Doing Good Work

It is going to be part of the work of the American Face Brick Association, if I see things correctly, to develop the material market. I don't know how long it will be until the manufacturer of face brick fully realizes what the future is for the industry. The work of the American Face Brick Association today is just commencing to show big results.

If the association had twice the funds it has had during the last three years to expend in educating the public as to the superiority of face brick as a building material, then the face brick business of this country would become a real business.

The face brick business as a whole is now making money; we have learned how to sell and to treat our competitors with some kind of fairness, and instead of the old methods we are trying to carry out a higher standard of ethics. 15 years ago we never heard of ethics in the business. We never thought of trying to treat our competitor in a fair way, we looked upon him as legitimate prey. Every real manufacturer today is trying to turn out a better brick; at the same time he is stepping up to a higher level and is treating his fellow manufacturers as he himself would like to be treated.

Urges Higher Face Brick Dues

If the American face brick manufacturers would put into the association a dollar instead of 25 cents per thousand we could get along much faster. The biggest manufacturer in the American Face Brick Association, when the question of reducing the assessment from 50 to 25 cents was brought up, objected to it, said he could not agree to it; that 50 cents was too little and he would much rather it were raised to a dollar than reduced to 25 cents. He saw the results of the association's work.

We recently sent out from the association's office in Chicago literature to over 1,900 different people in one day, and that was but one day's mail—just think of it. The next day probably not so many, but it was running 19, 18, 17 hundred day after day. But we ought to have more; instead of 1,900 we ought to be sending literature to 4,000 or 5,000 a day. We are just gaining momentum and if we can keep up we are going to be able to sell brick as never before. We all know what the operation of the law of supply and demand means. During the war we had our economic conditions so upset that a few shallow thinkers said the law of supply and demand had been done away with, but we will never hear that again. That was a mistake.

Production Follows Distribution

For years, many face brick manufacturers had their eyes set only on increased production, feeling that if they could increase production they might reduce the cost by putting in new machinery, overlooking the all-important necessity of stimulating and building up a market for this increased production. Apparently their only idea was to sell their product by cutting prices, instead of realizing that they could create a market for their product and stimulate the demand by showing the consumer the value and desirability of the

product. They overlooked the tremendous value of a proper selling organization and high-powered selling methods.

Today the manufacturer of face brick is realizing the vital importance of proper methods of distribution. He is realizing that production will take care of itself if he can create in the mind of the consumer the thought that the best material for his building, whether it be his home or some other building, is face brick, and if he will create a method of distribution which will make it as convenient and easy for the consumer to get face brick as it is to get any other building material.

Every Dealer Should Stock Face Brick

And now we are beginning to see that our business, if it is to be a success, will necessarily have to look to distribution as well as production. There are many ways of distributing brick, but, as I have previously said, I think the field which is most fertile at this time is the cultivating of the small dealer in the various towns of this country. Every building material dealer in the United States ought to have from one to twenty carloads of brick in his warehouse. Look at the cement! You can buy cement in every little corner grocery because the cement manufacturers have seen to it that their product has been properly developed—have seen to it that every dealer shall be supplied with cement. Now they are spending hundreds of thousands of dollars to teach the general public how to use cement. We are spending some money to teach the general public new uses for face brick that we did not always have, but we are not one, two, three compared to the cement manufacturers, and not even in sight of the lumber manufacturers.



REFRACTORY BUYERS HOLDING OFF

While a tendency to withhold forward buying of refractories is manifested by most of the larger and all of the smaller users, occasionally an inquiry develops involving one-half million brick or more, says Iron Trade Review. The iron and steel industry continues to take in brick on order but many consumers are using up their shed stocks and deferring action on their replacement. A few purchases recently noted have involved around 200,000 brick each and one or two larger inquiries now are current. Specifications on contracts from large users are received regularly and one or two releases on orders held up have lately been received.

Kiln operations are proceeding at a 70 to 80 per cent. of capacity rate and brick manufacturers generally are optimistic concerning the future. New construction projects are not numerous altho the new blast furnace and open hearths for Canton, Ohio, interests are expected to require several million brick.

The following prices are the latest obtainable:

FIRE CLAY BRICK (Per 1000 f. o. b. works)

Pennsylvania, No. 1.....	\$48.00 to 51.00
Pennsylvania, No. 2.....	43.00 to 46.00
Ohio, No. 1.....	45.00 to 47.00
Ohio, No. 2.....	40.00 to 43.00
Illinois, No. 1.....	48.00 to 50.00
Illinois, No. 2.....	45.00 to 47.00
Kentucky, No. 1.....	45.00 to 47.00
Kentucky, No. 2.....	40.00 to 42.00
Missouri, No. 1.....	43.00 to 45.00
Missouri, high grade.....	45.00 to 53.00
Maryland, No. 1.....	50.00 to 53.00
Maryland, No. 2.....	44.00 to 47.00

SILICA BRICK

Pennsylvania	\$46.00 to 47.00
Chicago	52.00 to 54.00
Birmingham	48.00

Brick Men Enjoy Thrills in Orient Adventure

*But They Also Get What They Go After
—Its on the Way to Cleveland Now*



Part of that great historic wall of China BUILT OF BRICK that extends for 1,700 miles. "It crawls over the ranges like a huge snake." Note the brick fallen from walls lying loose on wall tops

MOONLIGHT SHEDS cold rays on a desolate waste. The air is still, save for occasional noises made by the wind as it sweeps anon thru the sparse brush that dots the landscape. In the distance is seen a strange structure, looming high in the sky, and also covering much of the land. As the cloud that has been hiding the moon for a moment passes, the strange view is seen to be, not a building, but in truth a gigantic wall, high and thick, and stretching east and west as far as the eye can reach. Its tortuous course follows every hill and vale.

What is that moving in that patch of moonlight? A coyote? No, for this is not the land of coyotes. Some other wild beast? It cannot be for it does not conduct itself as a four legged creature. Ah, the light is better. It is a man. It is more; it is several men. Why do they move so stealthily? See, they crouch on all fours. They must fear attack. Then, also, they must be about to perpetrate some deed at which they do not care to be seen.

Slowly but steadily they approach the strange structure that seems to cover endless territory. They reach its base at last. They disappear in its shadows. Now we know who and what they are. Body snatchers who would desecrate a tomb. But no, that cannot be, for they carry neither implements to rob, or means to carry away such ghastly spoil. See, they move over the face of the wall. One of the band loosens a ledge, and tosses it to one of his fellows. He climbs higher, and exposes himself to stronger light.

Shot Down by an Unseen Hand

There is a crack! The little valley re-echoes with the report, like a miniature machine gun in operation close by. The daring member of the band who has scaled the wall totters. A second later he tumbles, shot down by an unseen hand. One brief look from other members of the band proves the victim is beyond their aid. As one, they scamper to the shadows. Now they are fleeing as fast as they can run. Soon they are out of sight. The moon continues to do its stuff, the wind continues windy as before.

Danger cannot curb curiosity, and we must see what this band strives for, in the dead of night, even at the cost of life to one of its kind. We must be cautious, lest the same hand that has struck once, may find us as well. A welcome cloud hides the moon. It cloaks our movements until we

reach the base of the wall. We can see the still form only a few yards distant now. And what is that beside it? Ah, it is a

BRICK!

The foregoing might be patterned into one of many chapters for a story of China, the great Chinese Wall, and the efforts to obtain, and final success in landing it in this country, of a caseful of the brick from this strange structure.

The Brick Arrives

The idea was conceived by Dana T. Bowen, head of the Bowen Brick & Supply Co., Cleveland, Ohio, two years ago. The other day the case of brick landed at Seattle, Wash., and is reported on its way to Cleveland at this time.

Tho this story is somewhat colored in its beginning, it states one of the many strange facts, as set forth in correspondence Mr. Bowen has received from China, indicating the hardships and difficulties in obtaining specimens of what many believe is the oldest brick structure in the world.

The outstanding feature is that it has taken two years, with many attempts during that period, for those working in the interest of Mr. Bowen, to get to the wall itself, much less extract some brick from it and start it on its way to Cleveland.

Seeks Aid of Experienced Adventurer

Thru a mutual friend, C. H. A. Palmer, Mr. Bowen and Joseph E. Kovar, traveler, explorer and business man, met just before the latter was about to leave Cleveland for China. Instantly it occurred to Mr. Bowen that if he could get a brick from the Great Chinese Wall it would afford untold value to the movement to build with brick in the Cleveland district. Mr. Kovar promised to get one of these brick.

In the correspondence that Mr. Bowen has had from Mr. Kovar in China, it is shown that the explorer tried several times during his first year there to get near the wall, but was frustrated every time. It may be remembered that at that time the warfare was on between the Chinese of the North and those of the South. In commenting on this Mr. Kovar wrote:

"Just now all foreigners are warned by the respective Consulates that there is much danger in moving about outside the concessions, and promise no protection to those disregarding these orders. So I must watch my chances to get to the Wall. By the way, those brick measure 22 inches long, 5 inches high and 8 inches wide. Some brick, I'll say."

Start Coolies Working Year Later

Mr. Kovar had made his headquarters in Tientsin.

A year later, in the spring of 1923, he wrote again:

"Two weeks ago I sent Chinese manager and coolies to Nankow Pass to secure that coveted brick. Conditions in China as you know have been much upset, especially so near the Great Wall, as Chang Tso Liu holds the territory north of the Wall, and Wu Pei Fu south. You can see what an easy (?) thing it is to accomplish—to scale the fence and start a band of coolies prying into it. However, I feel sure we will land the brick this time at Nankow Pass, which is about three days from Tientsin, and will forward same to you without delay.

"This makes several attempts. The first time the American Consul got after me for unduly exposing myself to trouble. The second time one of the men I sent to Shan-Hu-Kuan was arrested as a suspicious person, and I had to go to Peking to get his release. I have been after this brick so often now, that I am going to keep after it until I get what you want."

News Comes That Brick Are on Way

A few weeks later Mr. Kovar wrote again, giving the good news that he had succeeded in getting, not only one brick, but several, which, due to their great bulk, made a sizeable package. It was during the actual acquisition of the brick that one of the coolies was killed by a soldier in the fighting Chinese forces, Mr. Kovar writes.

Having got the brick, their troubles were only half over, for it had to be brought to Tientsin, over the roughest country, and part of this hardship is indicated in the bills sent to the Bowen Brick & Supply Co., some of which call for rickshaw hire, coolie carrying and the like. The rickshaw charge was 25 cents a day. Each brick weighs forty pounds. It was sent by M. Weil & Co., from Tientsin, with which firm Mr. Kovar has connection. It was handled by every mode of transportation except air, until it reached the

seaboard, and finally was placed on the President Grant, which landed at Seattle on June 2.

As soon as the brick reach Cleveland they will be photographed, and be used as the basis for a campaign for interesting the people in building with brick. Mr. Bowen has obtained some authoritative data on the Great Chinese Wall, principally indicative of its great age and the lasting quality of the material with which it was built.



REFRACTORIES SIMPLIFICATION POSTPONED

Further consideration of the standardization of refractories used in the steel industry, such as sleeves, nozzles, stoppers and runner brick, has been postponed indefinitely. A general conference of the manufacturers and of representatives of the iron and steel industries scheduled for June 18 at the Department of Commerce, Washington, was canceled. It is explained by officials of the Division of Simplified Practice of that department that business is of such volume at present that neither the refractory nor the steel manufacturers can give proper attention to the problem of eliminating excess types and sizes at this time. It is possible that another conference will be called in the autumn.



Mason's Strike Does Not Stop New York Brick Shipments

ACCORDING to the current demand for basic building materials for immediate use in New York City, labor disturbances are having little effect comparatively, in checking construction activity in the city as a whole, says the Dow Service daily building report for June 16, 1923.

Probably the most basic of all rough building materials is Hudson River common brick. When brick begins to slow up in delivery other branches of the building construction industry slow up, too. This commodity is therefore generally considered barometric of the entire construction industry.

Brick Moves Despite Bricklayers Strike

It has appeared to the public that with a bricklayers strike of considerable progress under way, construction in general must of necessity be at a standstill. If that were true the delivery of basic building materials out of dealers yards to construction jobs would at least be temporarily postponed. Promptly there would be a stoppage of sales on the wholesale brick markets. Nothing of the sort has occurred, however, during the present month while the strike situation has been growing acute.

Reference to the movement of brick barges in and out of the wholesale markets this month as compared with the same month last year, showed this month's total to have been heavier, if anything, than was June of last year when the labor situation was not so acute.

June 1922			
Barges		Arrived	Sold
Week ending	3rd	32	32
"	" 10th	40	40
"	" 17th	52	52
June 1923			
Barges		Arrived	Sold
Week ending	2nd	34	34
"	" 9th	42	42
* "	" 16th	50	50

*Barges reported arrived and enroute up to close of business June 14, plus estimate of what will leave brick plants

Friday and Saturday, sold, for N. Y. including bargeload of 400,000 sunk in South Brooklyn harbor, to be salvaged.

Supply Companies Business Is Big

Empire Brick & Supply Co., distributing in Manhattan, Bronx, Brooklyn and Queens, reported that in its case it was more a question of getting sufficient brick to meet demands for delivery of basic materials to jobs. A great deal more material could be sold for building purposes if the company could get it fast enough.

John P. Kane Co. making Greater City deliveries, but principally in Manhattan, reported having noticed but little effect upon their volume of delivery to some of the biggest jobs now under way.

Candee Smith & Howland Co., reported some light falling off in Manhattan jobs, but the slack was promptly taken up by increased demand for brick and other basic materials in the Bronx. This firm reported some withering of new sizeable jobs in the Bronx to follow the work now being finished up.

Murtha & Schmohl Co., catering especially to the Bronx, reported no slump off in the volume of building materials moving out thru their offices, evidencing the fact that bricklayers on strike in Manhattan, are working in the Bronx.



SUPERINTENDENTS ORGANIZE CLUB

Thru the initiative of S. M. Gibson, superintendent of the Independence (Kans.) Paving Brick Co., there has been formed a club of superintendents of the plants belonging to the Western Paving Brick Manufacturers' Association. The purpose of the club is to interchange ideas and discuss plant problems. The first meeting of the club was held May 26, 1923, at the same time as the Western Paving Brick Manufacturers' Association meeting in Kansas City, Mo. Mr. Swett, of the Purington Paving Brick Co., of Ill., was elected chairman and S. W. Gibson, secretary. The next meeting of the club will take place at Galesburg, Ill., July 7. There are no dues or assessments.

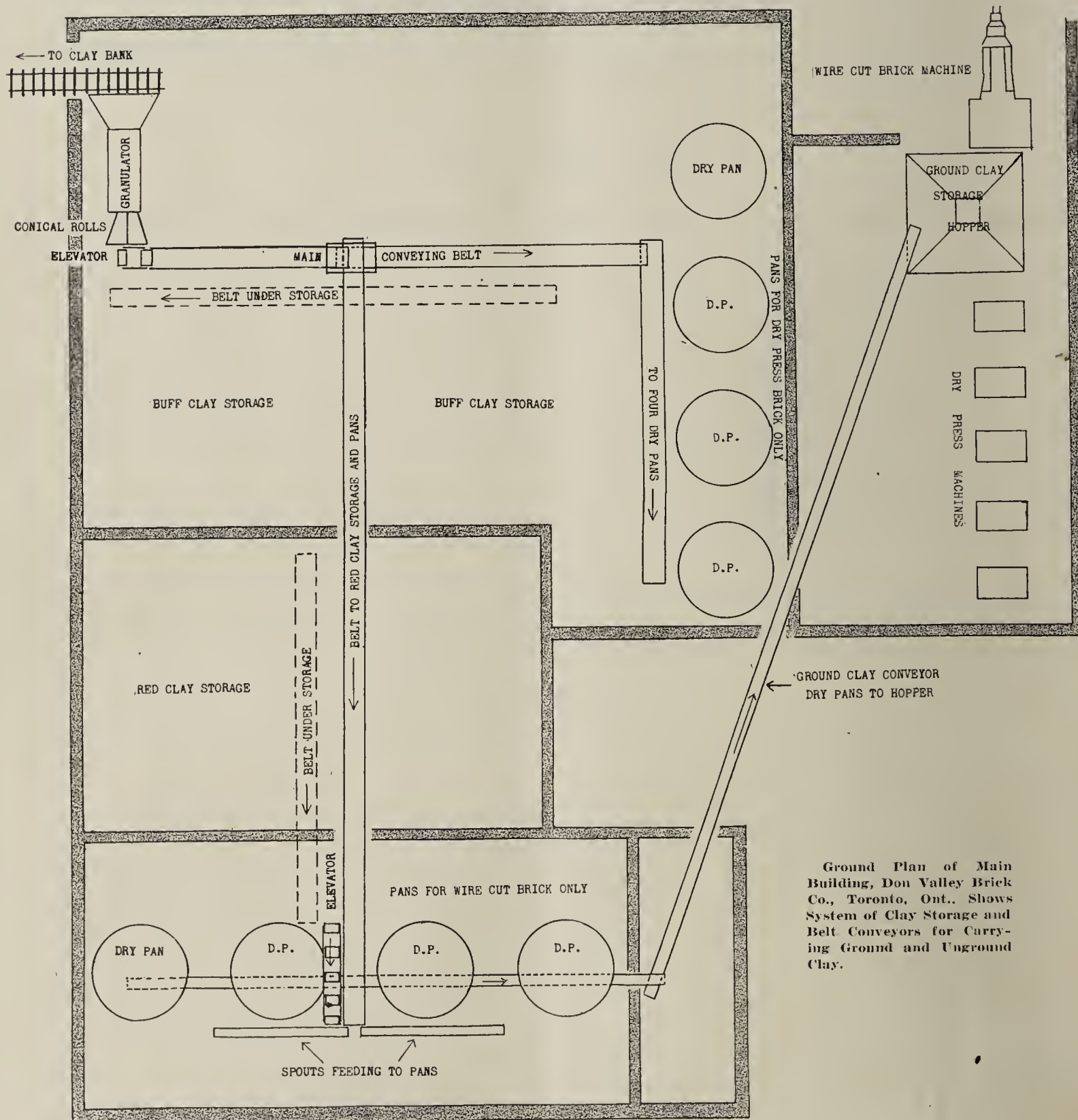
Handling Clay with Belt Conveyors

How William Burgess, Superintendent of the Don Valley Brick Works, Toronto, Ont., Overcame a Very Difficult Problem by the Use of This Type of Equipment

THE PROBLEM OF CONVEYING CLAY both before and after it has passed thru the dry pans, by a method which is at once simple, economical, and generally satisfactory, is one which with the advance of modern needs is brought prominently before all clay products manufacturers. There are several designs of conveyors in vogue at the present time. One very good type for clay handling is the belt conveyor, the principle of which is a delivery belt running sometimes horizontally, sometimes obliquely and again part

way horizontally and the remainder obliquely. It has simplicity of design, comparatively low initial cost and little power is required to drive it. In deciding upon a conveyor for handling clay, the following factors should be kept definitely in mind:

1. The quantity that should be carried per day.
2. Points from which and to which material is to be carried.
3. The method by which the conveyor is to be driven.



Ground Plan of Main Building, Don Valley Brick Co., Toronto, Ont., Shows System of Clay Storage and Belt Conveyors for Carrying Ground and Unground Clay.

The Don Valley Brick Works, Toronto, Ont., has at its plant an interesting installation of conveyors, which while it is not an ideal system yet solves the problems of the company nicely and has proven very satisfactory. The plant was not originally designed with any such installation in view and so when difficulties in the pit were encountered which necessitated changes in plant operation the conveying system had to be designed to fit the conditions obtaining.

Two years ago the Don Valley Co. ran into difficulties by coming in contact with a small gravel seam. This seam at one point in the 65 foot bank was from three to six inches thick. Not much, you might say, on a bank of that size, but when it is realized that the largest of the pebbles were not larger than a marble, and ranged from that size down to the size of a pea and smaller, it takes little imagination to realize that there were many "lime blows" in the brick.

Dry Pans Eliminate Lime Pebbles

The problem confronting the superintendent, Wm. Burgess, was eliminating this difficulty while maintaining the big production of brick. After a great deal of thought and study, it was decided to run all the clay thru dry pans as the dry pans would overcome the trouble from lime pebbles to a large extent. Then the question was how to granulate the clay, remove the larger stone from it (which in the past had been done with conical rolls) and feed the clay to each of the eight dry pans which were located in sets of four at different parts of the plant. Furthermore, buff and red burning clay storages had to be provided to take care of surplus clay which the pans could not handle, at the same time making provision for wet weather or troubles in the pit. To understand the foregoing description, glance at the accompanying drawing which shows the location of the dry pans, the storage spaces, the dry press machines and the brick machine.

Main Conveyor 100 Feet Long

To begin with, the granulator was placed near the clay bank so that clay could be dumped into it directly from the cars. It may be stated here parenthetically that raw material at the Don Valley plant is shoveled by hand into cars and these cars carry it up to the granulator. The hand method is adhered to because it insures a better mix of the different strata of material in the company's big bank. After the material is dumped into the granulator it is fed into conical rolls, from where it drops onto a bucket elevator. This equipment carries clay to the top of the storage shed, a height of 35 feet, and dumps it onto a conveying belt 16 inches wide and 100 feet long, which is the full length of the storage shed. This is the main conveying belt. It delivers clay to a set of four dry pans. This belt runs nearly all its length on flat idlers so that the clay can be scraped off into the shed at any point. This scraping off process is accomplished in a very simple manner. A straight board which acts as a scraper, is set over the belt and another board placed under the belt to bring it up to the scraping board, thereby getting all the material off of the belt.

Dry Pans Fed by Belt Conveyor

At the driving end of the main conveyor belt is another conveyor about 50 feet long which runs at right angles to the main belt and delivers clay to four different dry pans. The clay is dumped from the belt into a hopper from where a long swinging spout delivers it to convenient spots. Under the buff clay storage shed (see drawing), there is a tunnel five feet wide and six feet deep in which is located the reclaiming conveyor belt. This belt carries the storage clay in the shed back to the same elevator that carries the clay up to the main belt and the clay is thus reclaimed from storage.

About in the middle of the main conveyor there is a tripper which makes it possible to divert the flow of clay onto another conveyor running at right angles to the main belt. This conveyor is 150 feet long and carries the clay to a different set of four dry pans than that which the main conveyor feeds. This conveyor also handles the red burning clay and fills the red burning clay storage, as shown in the drawing. The same reclaiming arrangement is used in this storage as in the buff clay storage, a conveyor under the floor of the storage which carries the clay to an elevator from where it is delivered into the same spouts into which the top conveyor dumps. These spouts feed the dry pans.

Belt Carries Ground Clay 200 Feet

From this set of dry pans, ground clay is conveyed to the dry press machines at the other side of the plant by a belt conveyor which runs almost the entire length of the building. The dry pans from which this conveyor carries the ground clay are about 200 feet from the dry press machines. All the ground clay is carried to the dry press machines on the conveyor just mentioned, which is 18 inches wide and runs on flat idlers at a speed of 130 feet per minute. Running at this speed the belt can carry enough ground clay to make 90,000 brick in nine hours. The ground clay is deposited in a large hopper which is placed directly over the dry press machines. From there it is fed into the machines.

Reclaiming Stored Clay

The tops of the tunnels under the storage sheds, which house the reclaiming conveyors, are covered with railroad rails and short pieces of plank. Feeding the clay onto the belt is a simple matter since all that is necessary is to lift these loose boards, one at a time, and the clay will fall down onto the conveyors. This arrangement worked very well excepting that it was impossible to fill up the sheds entirely since a space had to be left from which the feeding process could be started. To obviate this difficulty the superintendent hit upon the plan of building a tube out of nine inch sewer pipe. This tube is started directly over the reclaiming conveyor and as the clay is dumped into the shed around the tube, the pipes are gradually built up, remaining even with the top of the clay storage pile. The operation of this scheme is very simple, workmen shovel clay into the sewer pipe which guide it directly down onto the conveyor. As the storage pile grows less the height of the sewer pipe tube is also lessened.

* * *

COUNTRY'S BUILDING TOTALS STILL HIGH

The record of building permits issued thruout the country in May reveals a continuance of gains in 1923 activities as compared with 1922. The most significant revelation is the continued upward swing of building activities as compared with the previous year, thus testifying to the urgent needs of the country for more adequate building facilities.

Analysis of these reports also indicates that the efforts made thru various channels to curtail the building movement may be losing effect in New York City, the Eastern States and the States of the Far West, while they are producing more tangible results in the Central West and the South.

Building departments in 284 cities issued permits in May of \$289,185,757. An estimate based on official returns received by S. W. Straus & Co. places the building operations during the first five months of 1923 for the whole country at about \$600,000,000 ahead of the same period in 1922.

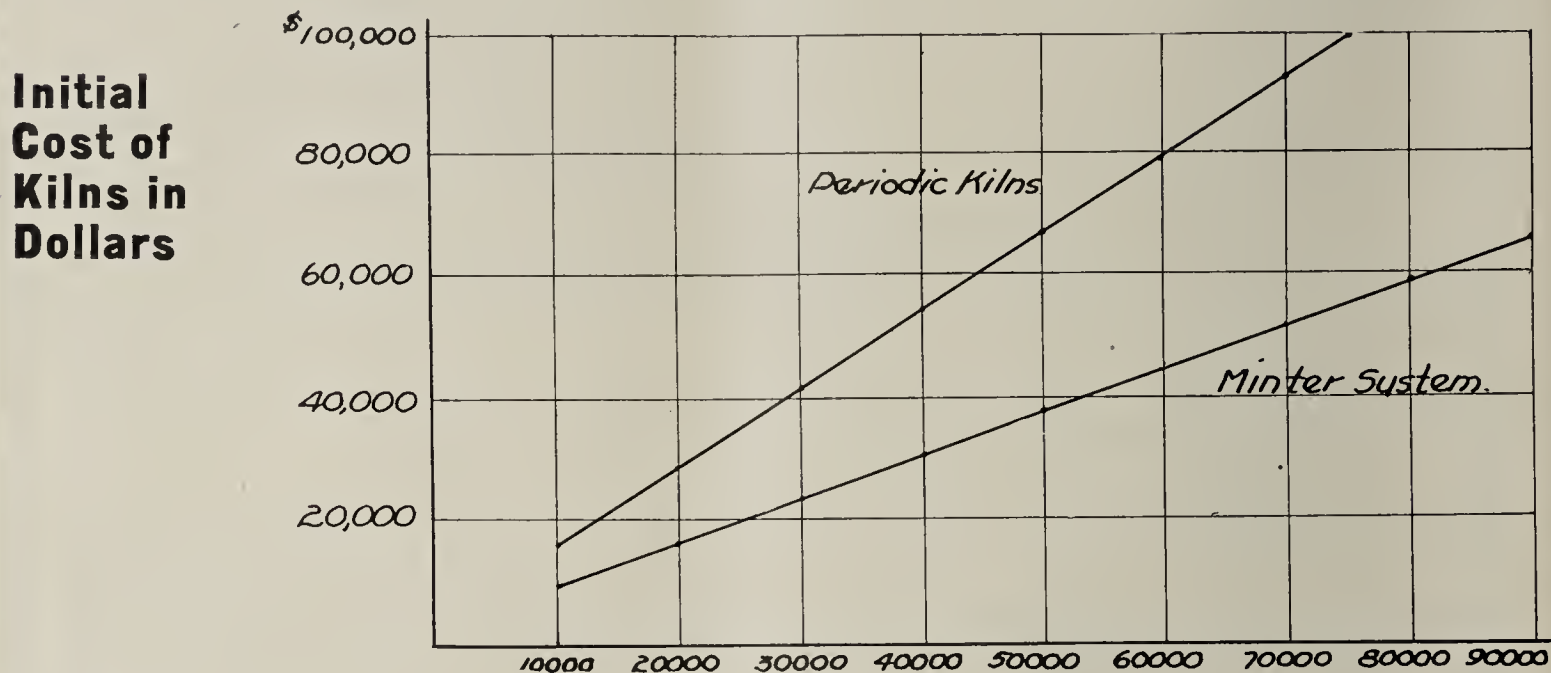
* * *

FIND BRICK 4,800 YEARS OLD

Nothing new under the sun. Brick made by hand 2,900 years before Christ in Babylonia, bear two finger or thumb marks of their makers, recent excavations show.

Figures Show MINTER SY

Graph I shows initial cost of erecting kilns per thousand brick daily plant capacity for Minter and Periodic systems.



Capacity of Plant—Brick per Day

This graph was figured from actual installation costs of Minter System and periodic kilns. The reason for the cheaper cost of the Minter System lies mainly in the greater capacity these kilns have, due to their rapid burning time of about 72 hours and their accelerated cooling. The cooling, however is entirely within control and should the ware be such as requires considerable annealing and soaking the proper regulation is within easy reach.

The initial cost in the above graph includes insulation of kiln crowns which is an integral part of every Minter construction. Other salient features of Minter construction are:—improved kiln bottoms to obviate sand and dust wedging into bottom paving and spreading it, and a crown built independent of wall lining which acts favorably as an expansion member and prevents leaky, cracked walls and crowns.

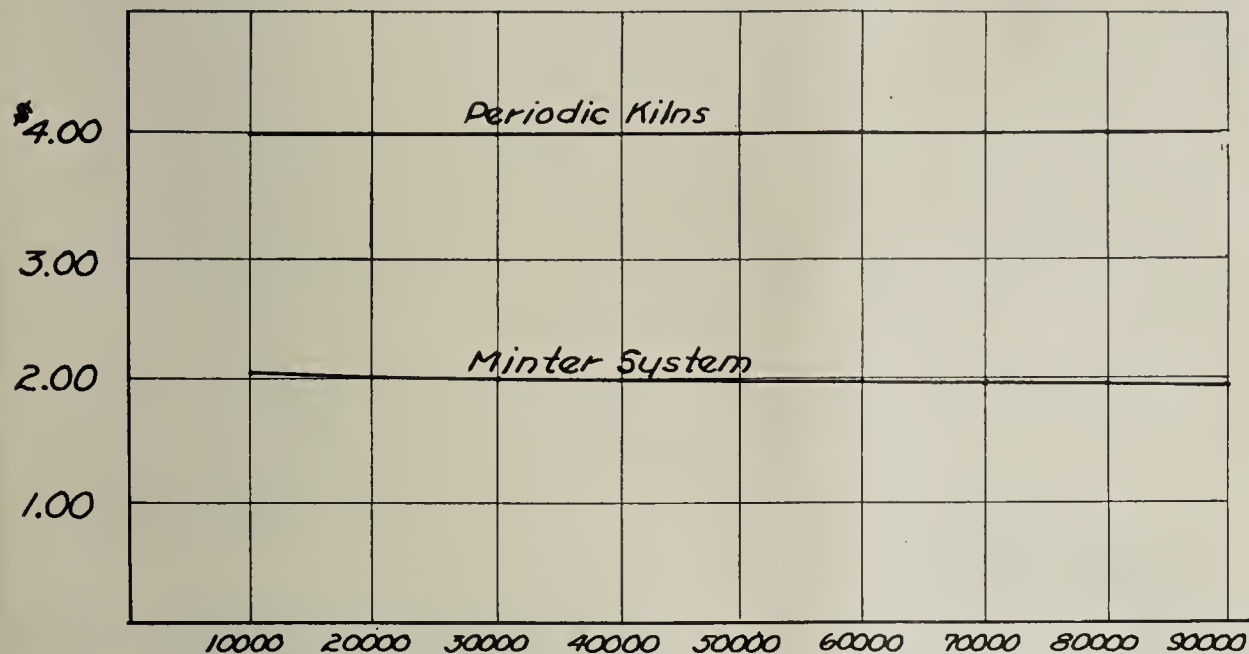
Successful installations of the Minter System are the clinch of economies brought about by the Minter System:
The Citadel Brick & Paving Block Co., Quebec, Canada; T
Submit your burning data to us. We will send you an app

MINTER

215 Doctors Bldg., Columbus, Ga.

M Saves One Half of Fuel

Graph II shows cost of burning per thousand brick daily plant capacity for Minter and Periodic systems.



Cost of Burning
Brick per M
for Various
Plant Cap-
acities in Fuel
and Dollars

Capacity of Plant—Brick per Day

These curves represent the compilation of various plant operating data before and after Minter installations. The cost of coal only is figured in the burning expense. If firemen's wages were included it would show a still further reduction in cost.

The main reasons for the large savings possible with a Minter System are:

1. Waste heat is utilized.
2. Mechanical draft gives perfect control of heat distribution and enables ware to be cooled as rapidly as it will stand.
3. Kiln insulation and airtight walls and crowns conserve heat and preclude possibility of leaks.

An advantage of first moment is the flexibility of the Minter kiln, enabling it to burn any ware. Because each kiln is an independently controlled unit, many different types of ware may be burned at once. Unlike a tunnel kiln the Minter may be run at any fraction of capacity during dull times.

claims. Write any one of the following plants to inquire

Columbus, Ga.; The Flint River Brick Co., Albany, Ga.
economies which a Minter System installation will effect.

SYSTEM

Home Office, Albany, Ga.

They Never Stop Advertising In California

FOR THE LAST FEW YEARS the Los Angeles clay products manufacturer has been the envy of his brother manufacturers all over the country. Immediately after war time restrictions were removed the building industry in Los Angeles began to boom and the clay industry with it. Clay products manufacturers have been enlarging their plants, improving their methods and cramming every ounce of efficiency that they could into the production of building materials. And the resultant output has been inadequate to fill the demands of the construction industry.

There is at present no sign of a let-up in Los Angeles' tremendous building activity. And consequently clay products manufacturers are still running their plants to the very limit of their capacity and finding orders for every good brick and tile which is taken from the kilns.

This preamble, which is more or less ancient history to the clay industry is necessary to bring out forcibly the point of

the story which is here being told. On this page are reproduced, two advertisements of Los Angeles clay products companies—the Los Angeles Brick Co. and the Los Angeles Pressed Brick Co. These advertisements appeared in the Los Angeles Times, Sunday, June 17. They are significant because they show one of the tools which far-sighted manufacturers use to insure a continuance of good business. Here are two companies which for a number of years have constantly had more business than their plants could handle, and yet never a Sunday passes without a full page or less of space being taken in the newspapers to advertise clay products. These companies are building for the future. They are building up a good will account which will manifest itself in dollars and cents in days to come when building is not proceeding at such top speed as it now is.

It takes a progressive manufacturer with a far-seeing mind to spend money in building good will at a time when he does not need any more business and in fact could not handle more business than he has. These manufacturers know that they have got to keep their name before the public at all times, when business is good as well as when business is bad.



it does pay!

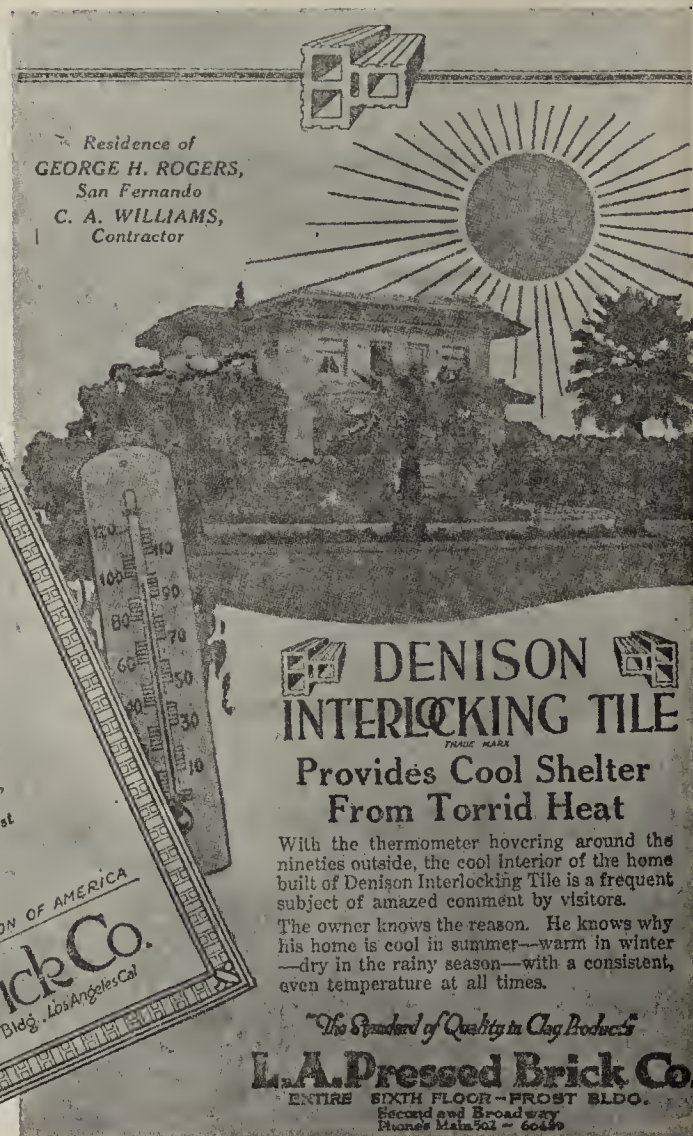
THIS attractive Brick Hollow wall home (5 rooms) just built in San Gabriel cost less than \$4000, complete. That "they have smashed the fallacy that Brick is expensive" is proved here.

This Brick home, 28 feet wide by 44 feet long, is a striking example of our contention that "It actually PAYS to build right." It is everlasting free from fire and upkeep expense.

Write for Bungalow booklet illustrating "Ideal" Brick homes with floor plans. Free on request

COMMON BRICK MANUFACTURERS
Los Angeles Brick Co.
Phone Pico 3388
514 515 Security Bldg., Los Angeles Cal

MEMBER OF ASSOCIATION OF AMERICA



Residence of
GEORGE H. ROGERS,
San Fernando
C. A. WILLIAMS,
Contractor

DENISON
INTERLOCKING TILE
TRADE MARK

**Provides Cool Shelter
From Torrid Heat**

With the thermometer hovering around the nineties outside, the cool interior of the home built of Denison Interlocking Tile is a frequent subject of amazed comment by visitors. The owner knows the reason. He knows why his home is cool in summer—warm in winter—dry in the rainy season—with a consistent, even temperature at all times.

"The Standard of Quality in Clay Products"

L.A. Pressed Brick Co.
ENTIRE SIXTH FLOOR—FROST BLDG.
Second and Broadway
Phone Main 502 - 6040

Los Angeles Manufacturers Believe in Advertising, Even Tho They Are Straining Every Piece of Equipment to the Utmost in an Endeavor to Supply the Demand.

Apprentices and Craftsmanship

D. Knickerbacker Boyd

*Architectural Advisor and Structural Standardist, with
Structural Service Bureau, Philadelphia, Pa.*

AT THE MANY MEETINGS which we have had of the Philadelphia Building Congress, we have almost always come down to the one subject, that of the lack of apprentices, and the need of apprenticeship training in the building crafts. These conditions seem more accentuated today than ever before, because of the recent great increase in the amount of building construction. Notwithstanding this, the facts are that during the last ten years the number of workers in the building trades has constantly decreased, while, with the exception of the period following the war, building itself has greatly increased, so that you see the situation we are confronted with today is quite a natural one. But it should have been recognized long ago.

Whose Fault Is Lack of Apprentices?

Now, when we consider the problem of the apprentice in the building trades—or crafts, as I prefer to call them, and debate whether the fault lies with those who, it is often claimed, are endeavoring to restrict the number of apprentices or with the employers who it is also claimed are not willing to assume the responsibility of training young men, we have before us quite a large subject.

The difficulty seems to be, notwithstanding the two claims made, that the boys do not exist in sufficient numbers who want to learn the crafts and trades. The young men of today do not seem to want to enter into what they consider the "laboring" field.

What Workers Should Be Taught

We must inculcate the idea in the young men of America that the crafts do offer a future for them, and we must stimulate in their minds a desire to achieve something dignified and definite with their hands. The craving of every human being to create and accomplish, can be satisfied thru craftsmanship properly appreciated.

After all, the greatest discourager of the boy who might want to become an apprentice in the building trade can be, and most frequently has been in recent years, the father who is now working in the trades. Fathers, uncles or relatives who are employed in the so-called building trades at this time will generally not urge or encourage their sons, nephews or other young men to enter the same calling.

Hardships of a Building Trades Worker

The journeyman of the present generation now working on the buildings we design realizes that he has lost much time in the Eastern and other sections of the country subject to cold climates, thru seasonal losses of occupation. He has, in normal times, been subject to intermittency of employment and he has been working at what is almost always rated a hazardous occupation. He is frequently working out doors, subject to attendant disadvantages as well as advantages. His task is often a very heavy one and involves a difficult piece of work, and in spite of the skill required and art he many times displays, he tells his boy not to learn that trade. These men can be the greatest enemies of the building crafts today. I think the fault lies partly with the construction groups, the public and with architects.

Locally and nationally, studies of all the difficulties involved can be made and conditions alleviated thru cooperation of all, including the public by sensible distribution of its new construction and maintenance requirements.

Conditions Can Be Alleviated

As for our part as individuals, if we architects recognize the fact that we are, as our very name implies, master craftsmen, it seems to me that we ought to be able each to accomplish our part in improving the status of other craftsmen by encouraging and giving recognition to the "workers on the job." It is these men who, as a matter of actual fact assume their part with us in securing the results which we are striving for when we design our buildings and write our sometimes hazy specifications. If our contact with the workers on our buildings is such that they know that real interest and good work will cause favorable comment, we will encourage them and help them to believe that which they may often be justified in doubting,—namely, that what each is doing is, if well done, an accomplishment worthy often to be called an art.

Workers Should Feel Importance of His Job

The consciousness on the part of each that what he does is something vitally important to the success of the whole design and fabrication will cause each to feel that he must qualify as a craftsman, and not be content to consider himself merely one of a "gang" working on a "job."

I have often talked to workers collectively and individually and asked them, if they should be requested to express one wish that they would like to have gratified more than any other, what that wish would be. They have all said, strange as that may sound to some, that what they wanted most was some fair recognition for their work,—or as they have put it,—a few words of appreciation for work well done when they try to do their best.

Architects Apprenticeship Committee

If we make the workers feel that we recognize their part as real factors in the success of any enterprise, that their efforts and the results of their work form a large part of the success of our work, and the satisfaction of our client,—if we do that, the apprenticeship problem will largely solve itself.

I would like to suggest, however, in view of the points raised during this convention on the apparent lack of apprentices, that some step might be agreed upon whereby the Industrial Relationship Committee could appoint a sub-committee on Apprenticeship. In its title I would, however, include Vocational Guidance, because the fault it seems to me lies largely with the lack of guidance toward manual labor in the schools.

I believe that the Institute of Architects could do nothing of much greater value than to create such a Committee if thru it a new Document might be prepared which could well be entitled "The Romance of Building," and it could be made available to the schools everywhere. In this booklet could be portrayed intelligently and enthusiastically, the advantages of being a worker on a building and of having an opportunity to cooperate with architects and all other craftsmen in being of ever increasing service to the people of this country.

Editor's Note.—This article is from a paper read by Mr. Boyd before the American Institute of Architects at that body's last convention.

FINE CERAMIC MANUFACTURE



A Department Devoted to Practical Problems in the Manufacture of Higher Grade Ceramic Products Such as Whiteware, Including Electrical Porcelain, Floor and Wall Tile, Sanitary Ware, etc., as Well as Stoneware, Terra Cotta, Special Refractories and Other Articles Where High Grade Clays Are Employed in Their Fabrication.

OLD PENNSYLVANIA DUTCH POTTERY

This extremely interesting article describing what were probably the first evidences of the pottery industry in the United States was written by Dr. Samuel H. Woodhouse, Baugh-Barber memorial curator of the Pennsylvania Museum. It was printed in the Philadelphia Public Evening Ledger.

"THE EXISTENCE of the ancient art of slip-decoration in America was not even known to ceramic students until 1891, when the attention of the late Dr. Edwin Atlee Barber, then curator of the Pennsylvania Museum and School of Industrial Art, was attracted to the subject thru the purchase of a red earthenware pie plate while gathering material for a paper on the pottery of the United States.

Inscription Revealed Origin

"This piece, embellished with floral and bird devices in the sgraffito style, and containing an inscription in German with the date 1826, was at first supposed to be of European workmanship, but a careful examination showed that some of the words scratched in the border were in 'Pennsylvania Dutch.' From this clue a series of investigations was instituted which resulted in the interesting discovery that this curious art, which had been brought from Germany, was flourishing in Eastern Pennsylvania before the middle of the eighteenth century and had continued for more than 100 years.

"Thru the liberality of John T. Morris and the work of Dr. Barber, the Pennsylvania Museum acquired a collection of this work which is absolutely unique and which could not be duplicated for any amount. It contains the best work of the old Pennsylvania-German potters and is the most complete and representative of its kind ever brought together, as it was formed before other investigators knew that slip-decorated pottery had ever been manufactured in America at all. Many of the pieces were procured from descendants of the makers and, from information obtained from the same sources, are known to have come from certain potteries.

Transplanted Peasant Art

"This work is a remarkable instance of one of the very few transplanted peasant arts. The potters made many things—little toys, whistles, small farmhouse ornaments and churns, as well as dishes. The designs were very primitive and many of the products of the kilns were probably sold at county fairs and other gatherings of the farmers of the vicinity. Everything was of the most 'homy' nature. There was no aping after elegance; it was a native art, and the

things were made because the people needed them. All the things which have been found and added to our collection are the sort of things which would appear in a farm kitchen of the period.

"As the investigation of Dr. Barber was not made until about half a century after the last of these potteries had disappeared, there is no way now of telling what the total or annual production was. Many of the potters, some of the best among them, were itinerant. That is, they would come to a farmhouse, take orders for what was required by the farmer's wife, mold the dishes or other articles there and then take them to their own kilns for the firing. This is the reason why the names of so many of the owners appear on these dishes; they were made to order.

Rise and Decline of Potters

"The making of this unique pottery in the state of Pennsylvania began early in the history of the Commonwealth. Pottery of this kind was certainly made in Pennsylvania as early as 1733, and it is more than probable that this transplanted art had flourished here for at least some years before that time.

"It is also definitely known that slip-decoration was known and practiced in Germany and Saxony more than 200 years ago. It was not long after this time that the German immigration to the United States began, and that some of the potters came with the other immigrants is also certain.

"In the latter part of the eighteenth and during most of the nineteenth centuries there were many of them who came to Pennsylvania. Between the years 1780 and 1880 there are records of not fewer than 24 men being identified as potters in this region, about each of whom something definite is known. In addition, there were about the same number of journeymen potters who were almost as well known and whose work is good.

How the Trade Declined

"These men continued their work until about the year 1840, and some of the families were engaged in it during almost the entire period of its rise and decline. The chief reasons for its decline were apparently speedier means of communication, cheaper production in larger quantities and modern methods, with which these unique workers could not hope to compete successfully.

"Early in the twentieth century, clay roofing tiles were also made by the Pennsylvania-German potters, and some specimens of this work are also in the collection of the Museum. These, however, do not equal the dishes and the more personal articles made by the potters.

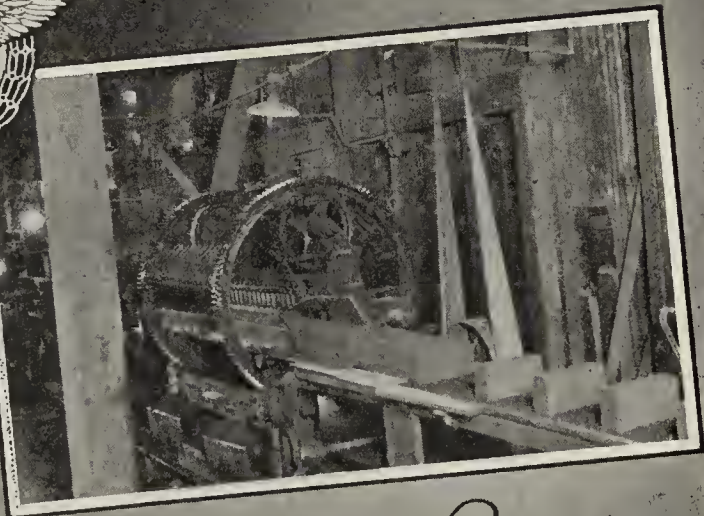
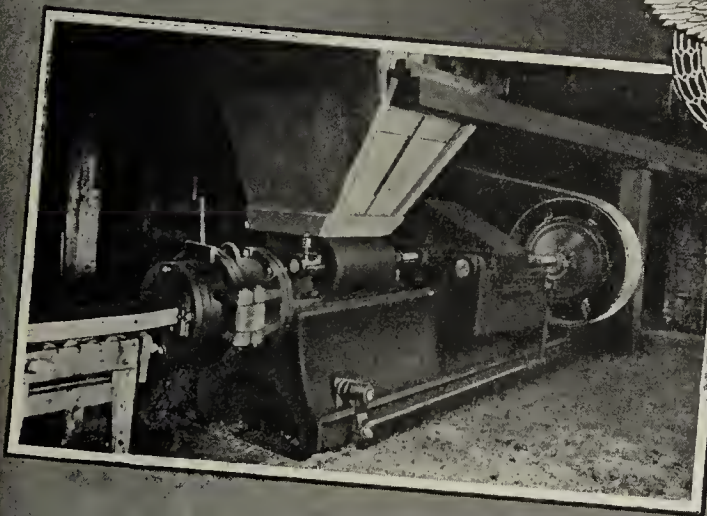
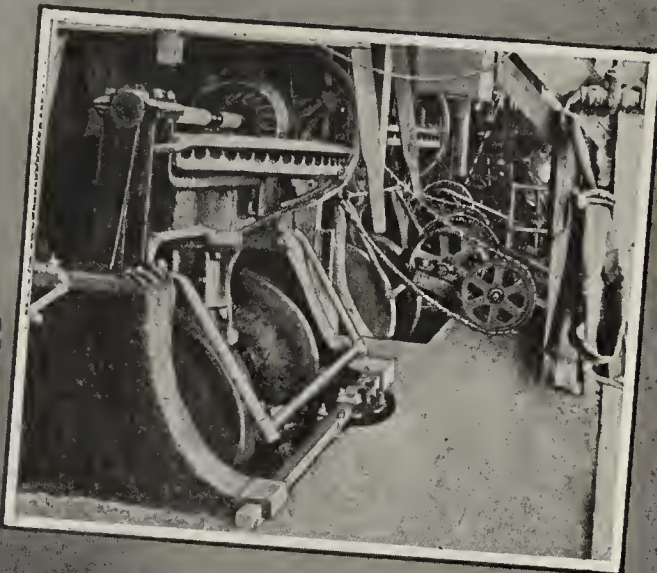
"The work of these men has a double interest. It has, first, an antiquarian interest, and, secondly, it has an interest as a peasant art which, tho it had its origin in the Valley of the Rhine, became changed in this country to a point where it seemed to be a native art here.

Increase in Value

"When the collection of the Pennsylvania Museum was
(Now turn to Page 1146)

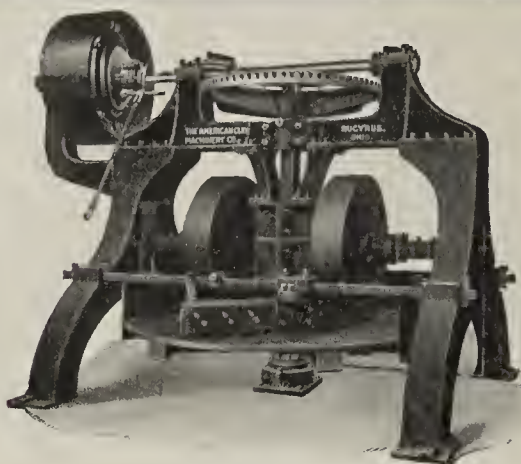
LOS ANGELES PRESSED BRICK COMPANY

LOS ANGELES, CALIF.

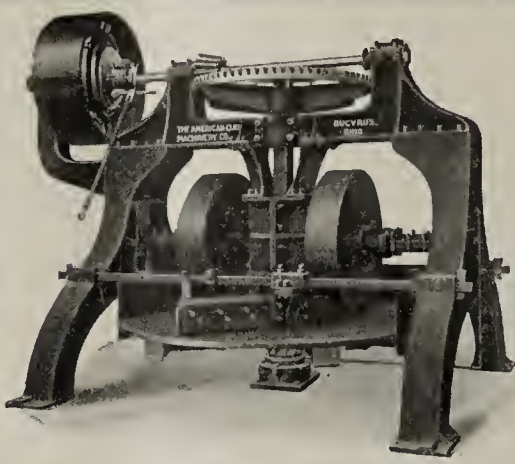


"Americans" Help to make a Success of the
Successful Los Angeles Pressed Brick Plant.

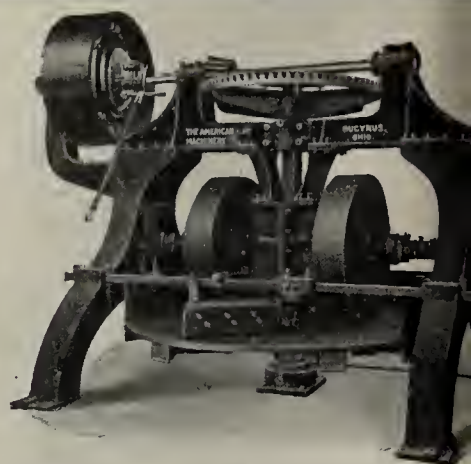
Los Angeles Pressed Brick Co. Us



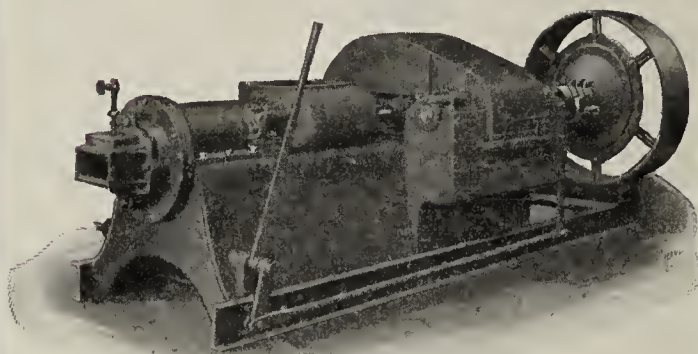
7 "American" 9 ft. Dry Pans



7 "American" 9 ft. Dry Pans



7 "American" 9 ft. Dry Pans



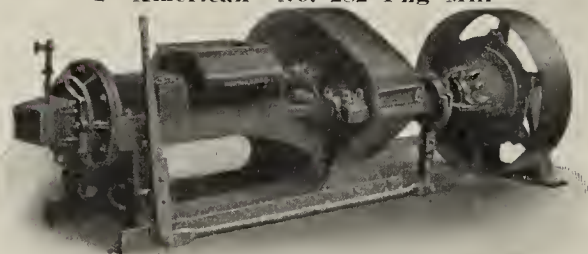
2 "American" No. 233 Auger Machines



2 "American" No. 233 Auger Machines



1 "American" No. 282 Pug Mill



1 "American" No. 281 Auger Machine



1 "American" No. 404 Combined Machine



1 "American" No. 29 Pug Mill

What the Los Angeles Pressed Brick Co. Thinks of the "American" Line

B. F. Cake, General Superintendent of the Los Angeles Pressed Brick Co., under date of April 25th, 1923, says:

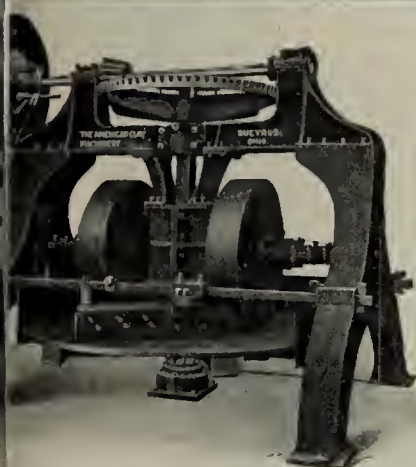
"We believe in standardizing and we believe in the Hadfield-Penfield machinery. Practically all of our dry pans, disintegrators, wet pans, pug mills, auger machines and dryer cars are Hadfield-Penfield make, and are used in the manufacture of hollow tile, face brick and roofing tile at our various plants.

We produce a maximum of 31 tons hollow tile per hour on the No. 290 machine and 6,000 face brick per hour with the No. 404 combined auger machine and pug mill.

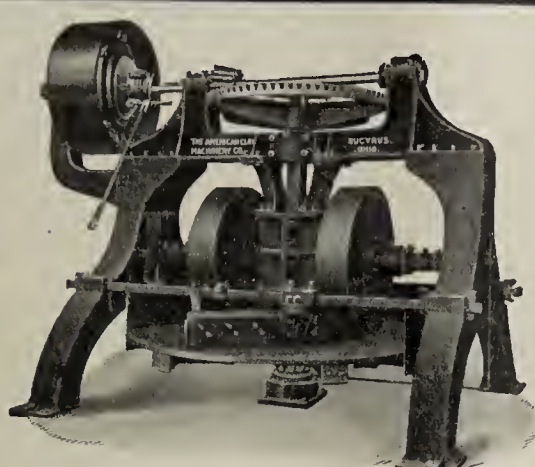
We are very much pleased with the high class of work performed by The American Line of Machinery as well as the simplicity of its mechanism."



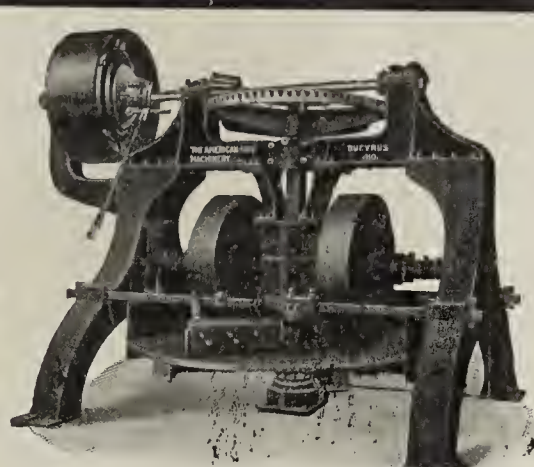
All These "American" Machines



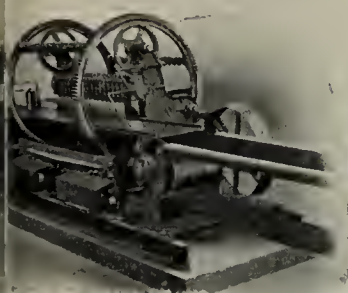
1 "American" 9 ft. Dry Pans



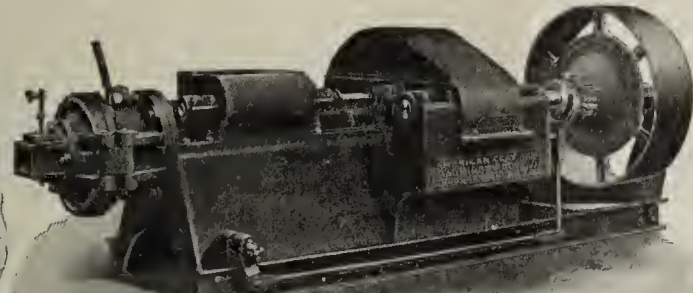
7 "American" 9 ft. Dry Pans



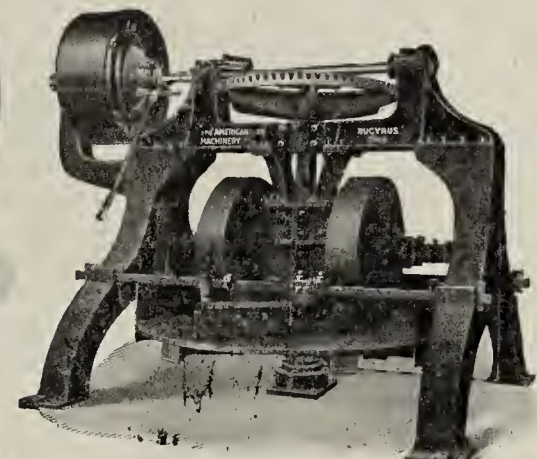
7 "American" 9 ft. Dry Pans



1 "American" No. 242 Cutter



3 "American" No. 290 Auger Machines



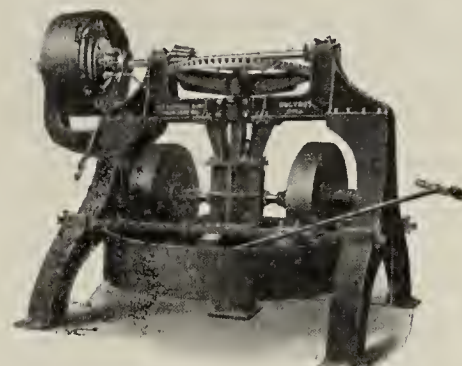
7 "American" 9 ft. Dry Pans



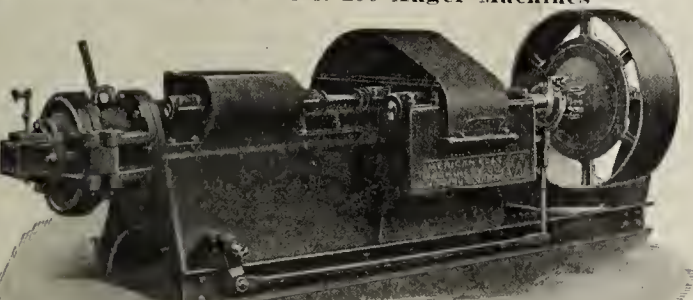
1 "American" 292 Reprass



3 "American" No. 290 Auger Machines



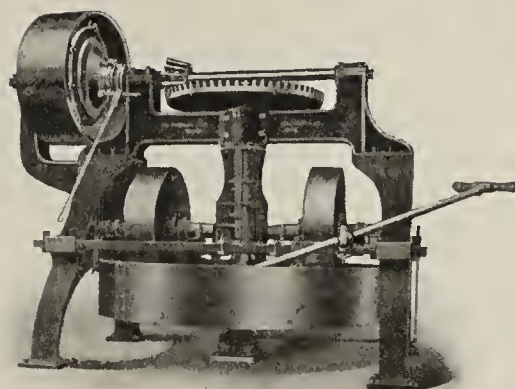
1 "American" 9 ft. Wet Pan



3 "American" No. 290 Auger Machines



3 "American" Disintegrators



1 "American" 8 ft. Wet Pan

(Continued from Page 1142)

started, the pieces could be bought anywhere from a few cents up to a price rarely exceeding \$14 or \$15. But with the information which has been accumulated by our institution and our splendid collection of specimens the prices now range from the teens of dollars well into the hundreds for a single piece. There is virtually none now to be found. Of course, occasionally a piece will turn up in the more remote sections of the country near which the old potteries were located, but even this is now rare.

"As I have said, the collection of our institution is by far the most complete in the world and no one has anything which can in any manner compete with it. When other museums desire to make an exhibit of this work, as many of them do, their only chance is to borrow specimens from us.

"This work is a type of the rudely ornamented pottery which for two centuries or more preceded the manufacture of porcelain among the civilized nations. Like all that pottery, it possesses a peculiar charm for collectors and students of the ceramic art, because of its boldness of decorative treatment and its quality of vigor.

Slip-Work and Sgraffito

"There are two varieties of this early slip-work, the slip-traced, or slip-painted, and slip-engraved, scratched or sgraffito. Slip-tracing consisted of trickling liquid clay or 'slip' thru a quill, attached to a little cup, over the surface of the unburned ware, to produce the decorative designs, the slip being of the consistency of thick cream or batter and of a lighter tint than the clay to which it was applied, the latter generally being a dark orange or red color.

"Slip-engraving consisted in covering the ware completely with a thin coating of slip, thru which the ornamental devices were scratched with a pointed instrument to show the darker clay beneath. In a general way it may be said that true slip-decoration may be distinguished by light-colored ornamentation on a darker ground, while sgraffito work is characterized by a dark design on a white or yellowish field. In the former variety the decorations generally appear in slight relief, while in the latter they are depressed slightly. The Pennsylvania-German potters did work of both kinds.

"That these early American potters were not without originality is shown by the fact that while the method of decorating clay by taking direct impressions from natural objects, such as leaves, was supposed to have been first employed by John G. Low at Chelsea, Mass., in 1878, the idea was in use among the Pennsylvania potters fully a century before, and early in the nineteenth century, pie plates were made in Bucks and Montgomery Counties bearing natural outlines of leaves of flowers and trees. Pieces of leaf-decorated pottery from the Pennsylvania potteries have been discovered bearing dates from 1785 to 1835, shortly before the industry was superseded by more modern methods."

* * *

SANITARY WARE INDUSTRY DEVELOPING IN CALIFORNIA

It is not alone in the line of construction materials that the clay industry in California is rapidly developing. For the manufacture of vitreous china and porcelain enameled ware for plumbing fixtures, there is an increasing use of the best of California clays. One of these institutions rapidly increasing its demand is the Pacific Sanitary Manufacturing Co., located at Richmond and San Pablo on the east side of San Francisco bay. These plants have grown until they employ 675 persons thruout the year, with an annual payroll of more than a million and a half. N. W. Stern, general manager of the company says, "California clays and California climate have proven an unbeatable combination, and in the last few years the high quality of Pacific vitreous china and

porcelain enamel ware has become generally known thruout the West. The uniform climate enables a uniform product to be produced the year around, and during the aging process the clays are not subject to extremes of temperature. One of the biggest reasons for the success of our company is its policy of continuous newspaper advertising. It is not sufficient simply to manufacture superior merchandise; you must tell the world about it."

Some of the clays used by the Pacific Sanitary Manufacturing Co. are from the Ione region. This region is producing constantly more of many valuable varieties of clay. In itself it is only a part of a stratum that runs along the foot of the Sierras, and is exposed in large areas at various points, and thinly covered at others. Thru the Ione district runs a broad-gage railroad, giving cheap transportation to the bay region. So at present 16 manufacturing enterprises are drawing supplies from this region. The clays vary from a snow-white to a mottled red; and the clay sand is good for glass. The white clay is nearly half quartz, with a fusing temperature of 3,000 degrees it is said, making it well fitted for vitreous porcelain. It is also shipped to various points for the manufacture of pressed brick, fire brick, architectural terra cotta, building tiles, high grade pottery and sewer pipe. Most of the clay-digging of the region is done by the Newman Co. operating in the white clays, and by the firm of Bacon & Bacon. The Bacon company not only operates its own pits, but operates pits on contract for others. In this way the company works the pits on the 200 acre tract owned by the Alameda Brick Co., & N. Clark & Sons.

* * *

BATEMAN SUCCEEDS SHINNICK

W. M. Bateman, former vice-president of the Mosaic Tile Co. was elected president to fill the unexpired term of William M. Shinnick, at the reorganization meeting of the directors of the Mosaic Tile Co., Zanesville, Ohio, recently. W. E. Miller of Newark was elected vice-president to fill the unexpired term of Mr. Bateman; N. E. Loomis, former secretary of the organization was elected treasurer. Mr. Loomis will act as secretary-treasurer and general manager until January 1, 1924.

Russel B. Harold and Roy E. Jordan of New York were named as directors. The two last named have been connected with the company for the past several years. Mr. Harold will continue his duties as general superintendent.

* * *

GETS BIG ENAMEL BRICK ORDER

Two unusual and large uses for enamelled brick and terra cotta have been made in the placing of contracts with the Cleveland Clay Products Co., Cleveland, Ohio, for these materials for use in the new Fairmount Pumping Station and the Medical Center Building, in that city. The brick, to the number of 300,000 costing \$100 per thousand, and the terra cotta, will be used for the interior finish of the pumping station, and the same materials will be used for the exterior of the medical building. The terra cotta is from the Federal Terra Cotta Co., and the brick from the American Enamel Brick & Tile Co. Both are white with the black mottled effect.

* * *

WOODS AND MCGILLIVARY REELECTED

In the recent referendum election of the National Brotherhood of Operative Potters, J. T. Woods was reelected president and J. D. McGillivary, secretary.

* * *

INCREASES CAPITAL

The Goodwyn Crockery Co. of Memphis, Tenn., has increased its capital from \$125,000 to \$200,000.

THE IRONTON STORAGE BATTERY LOCOMOTIVE

IF YOU want to find the most efficient and economical method of handling your haulage problem, then you should let our engineering department submit definite facts about the Ironton Storage Battery Locomotive and what it will mean in your own work. There is no obligation.

THE IRONTON ENGINE COMPANY
Ironton - - - - - Ohio

561-B Union Arcade Bldg.,
Pittsburgh Pa.

Branch Offices:

816 Robson Prichard Bldg.,
Huntington, W. Va.

1618 Arcade Bldg.,
St. Louis, Mo.

511 Widener Bldg.,
Philadelphia, Pa.

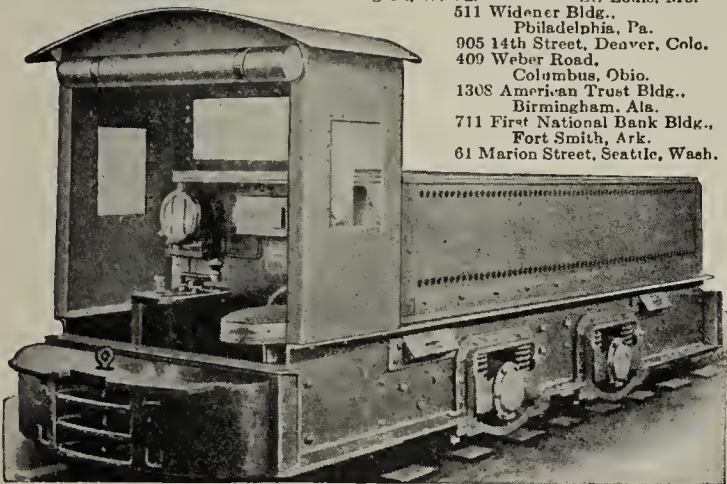
905 14th Street, Denver, Colo.

409 Weber Road,
Columbus, Ohio.

1308 American Trust Bldg.,
Birmingham, Ala.

711 First National Bank Bldg.,
Fort Smith, Ark.

61 Marion Street, Seattle, Wash.



Substantial Savings and

Increased Production

result from using Burke Electric Motors and Generators. They operate successfully under the most severe conditions.

*Send for list of satisfied
users in your industry.*

+ + +

BURKE ELECTRIC CO.

MAIN OFFICE AND WORKS

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PENNSYLVANIA

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NEW YORK
PITTSBURGH

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BUFFALO

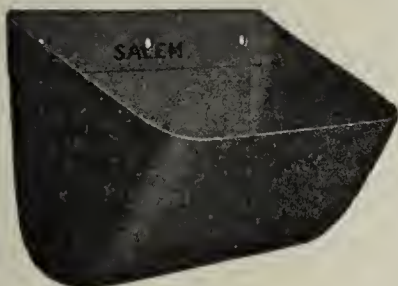
Sales Agencies

CINCINNATI: UNDERWOOD ELECTRIC CO.

KANSAS CITY: W. T. OSBORN

SAN FRANCISCO: *Coast Equipment Co.*

Salem Elevator Buckets



We are manufacturers of the original SALEM ELEVATOR BUCKET which is used for handling all classes of materials in many different industries.

This type of bucket is of one piece construction, with rounded contour throughout, smooth in form, durable in service and clean in handling and delivery of materials.

There are no seams in front nor on the ends, the laps being made on the back and bottom at the ends. On the back the laps are riveted or spot welded; on the bottom the end pieces are bent under and hammered tight.

The widest range of service is covered by a very full line of regular types and sizes and made in various gauges of steel, from the lightest practical for ordinary work to the heaviest necessary for the most severe duty.

Write for new price list.

THE WEBSTER MFG. COMPANY

4500-4560 CORTLAND ST., CHICAGO

Sales Offices in Principal Cities

OLD BEN

FRANKLIN COUNTY, ILLINOIS

COAL

Exceptionally Adapted for Manufacturing

Clay Products of Every Kind

Annual Capacity of Mines
12,000,000 Tons

C. B. & Q., C. & E. I., Ill. Central
and Missouri Pacific Connections

Sold under trade names

OLD BEN - PURITY - CHRISTOPHER

Produced and Shipped By

OLD BEN COAL CORPORATION

18th Floor, Illinois Merchants Bank Building

N. W. Cor. Jackson Blvd. and So. Clark St.

CHICAGO, ILL.

Management and Superintendence

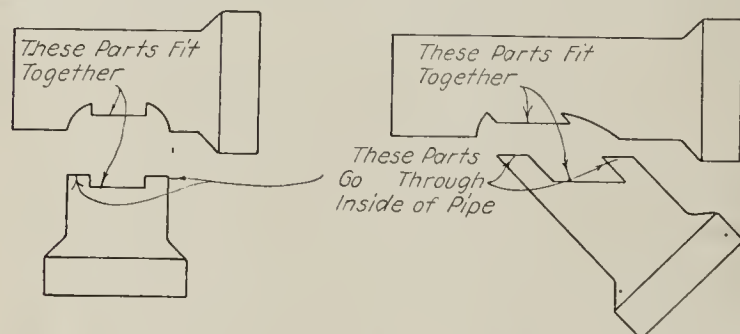
Editor's Note.—Brick and Clay Record is indebted to F. Clinton Jarboe, of Washington, D. C., for the two splendid ideas presented on this page. Mr. Jarboe has had many years' experience manufacturing sewer pipe and has himself tried out the schemes he tells of here.

Superintendents are invited to send in the little kinks and ideas which are being used on their plant to make a task easier or to do a thing more economically.

MAKING SEWER PIPE BRANCHES

Mr. Jarboe here presents a method of making branch sewer pipe which is worthy of investigation on the part of every manufacturer. He says:

"I have visited a number of sewer pipe plants and have always made it a point to see how the other fellow did his work. I have never seen any 'brancher,' that is the man who makes the larger sewer pipe fittings, use any method



Here Is a New Scheme for Making Sewer Pipe Branches

but the old way which is to cut the branch piece the shape of the large pipe and then stick or plaster it on. This method does not always guarantee a first class fit because the weight of the branch piece is so great that it has a tendency to pull away from the pipe during burning in the kilns.

"With the idea illustrated here, there is not so much or so great a tendency on the part of the branch to pull away from the pipe because part of the branch piece goes entirely thru the walls of the pipe and part of the pipe goes entirely thru the walls of the branch piece. This method might appropriately be called 'dove tailing' and it has in my experience proven to be a much better fitting than is produced

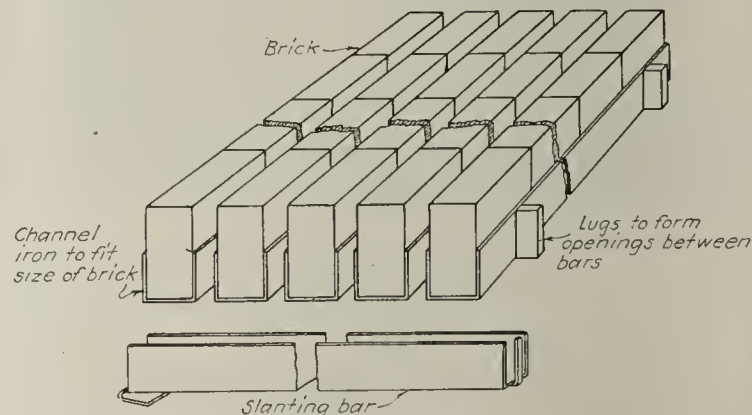
by the method commonly in vogue. With this system you can count on every piece being A-1 after it has been burned, provided of course the kiln has been burned well and properly.

"I do not wish to knock any man who uses the old system and what I say here, I say with all due respect of their ability. Making big branches is an expensive part of the work in sewer pipe plants because the percentage of loss in the kilns is so great. There may be lots of plants which would like to know of this method which I have devised and found very practical."



CHEAP, EFFICIENT GRATE BARS

One of the big nuisances and causes for trouble on most clay plants is the constant burning out of grate bars in the fire boxes. Mr. Jarboe has devised some grate bars which



A New Type Grate Bar Made of Brick and Channel Iron.

he has used with excellent success and which will never burn away. The accompanying drawing shows exactly what the grate bars are. They are nothing but a channel iron of the correct length, with the channel wide enough so that a brick can be fitted into it. The brick are laid into the channel loose and since they project out above the top of the bar, the metal is never in direct contact with the fire. As the brick burn away, it is a very simple matter to replace them with new brick. The cost of these bars, it can readily be seen, is very low.

THE BOYD BRICK PRESS

"Built Up to a Standard—Not Down to a Price"
FOR THE MANUFACTURE OF

Fire brick and shapes from fire clay, magnesite, chrome, and other materials. Regular 9 in. series, large and small 9 in. series, and tile up to 12x24x4 in. The only mechanical press that has been successful in the production of pressed brick and large shapes from dead-burned magnesite.

High-grade smooth face brick, round edge face brick, and rough texture face brick without addition of complicated special attachments or scratching devices, and common building brick, from shale, clay, and other materials.

Write for Bulletin AB and mention this advertisement.

CHISHOLM, BOYD & WHITE CO.
Office and Works, 57th and Wallace Sts., Chicago, Ill.

Established 1888

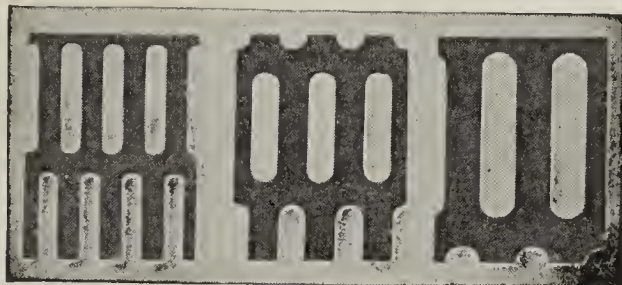
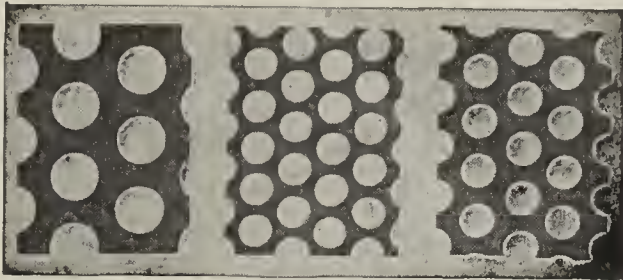
PLANT BETTERMENT SERVICE

A sincere interest in your problem, together with common sense methods and a broad experience makes this service highly profitable.

Write for details

WALLER CROW, INC.
Engineers
COUNSELLORS IN INDUSTRIAL
OPERATION & FINANCE
327 S LA SALLE STREET
CHICAGO

Perforated Steel Screens



**For Screening Clay, Shale, Sand,
Gravel, Stone and Cement**

All sizes and shapes of holes in metal of proper thicknesses to give the best screening results.

Sheets furnished flat or rolled to shape for revolving screens.

THE HARRINGTON & KING PERFORATING CO.

635 N. Union Ave., Chicago, Ill.

NEW YORK OFFICE: 114 Liberty St.



Stop Using Wheelbarrows

and the hand shoveling method to feed your dry pans. Labor is scarce and unreliable. With

ROBBINS Sectional Conveyors

properly arranged, one man will feed your pans better than three or four men can do it by hand shoveling. Give us a chance to solve your labor problems. Reduce your costs and speed up production.



WRITE TODAY

Robbins Machinery & Supply Co.

444 W. Grand Ave.

Chicago, U. S. A.

"Machinery for Moving Merchandise"

CAUCASIAN OXIDE MANGANESE

Powdered—Granular
For Speckled Effects

PRECIPITATE CARBONATE BARIUM

For Prevention of Scum
Thereby Producing
Deeper and Richer
Color

THE
**ROESSLER & HASSLACHER
CHEMICAL CO.**

New York

Chicago
Boston
Philadelphia

Trenton
New Orleans
Pittsburgh

Kansas City
Cleveland
San Francisco

FACE BRICK VALUES Increased By— NATIONAL MANGANESE

—enabling light burning and buff brick to be made into beautiful, high priced French Grays

—unusual speckled effects produced.

—red burning clays made to produce a very popular brown shade.

Write for samples and prices.

National Paint and Manganese Co.
Lynchburg, Va.

Miners and Grinders For More Than a Quarter Century



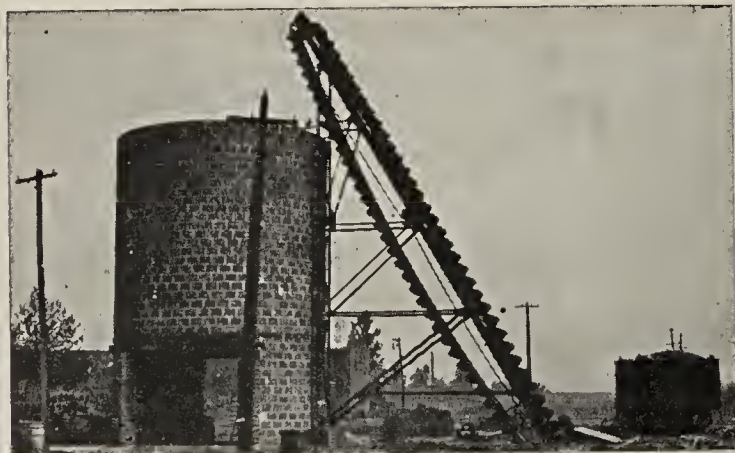
SUNBURY

AUTOMATIC CAR UNLOADER

Loads or unloads coal at the rate of 30 to 50 tons every hour. Only one man needed.

Let us tell you what other clay plant operators are doing with the Sunbury in saving time, money, and labor.

The Sunbury Manufacturing Co.
Surbury, Ohio



Drawn from the Kilns

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clay Manufacturing

HOOD GETS BUILDERS' EXCHANGE JOB

At the annual meeting of the members of the Atlanta Builders' Exchange, held recently, B. Mifflin Hood, president of the B. Mifflin Hood Brick Co., of Atlanta, and one of the best known brick manufacturers in the southern field, was elected vice-president of the exchange for the coming year.

BLAIR RETURNS FROM EUROPE

Will P. Blair, vice-president of the National Paving Brick Manufacturers Association, has just returned from a visit to Europe where he attended a convention of road building engineers. While in England, Mr. Blair had an opportunity to give English manufacturers an idea of paving practices in America.

E. ANDERSON PROMOTED

E. Anderson, formerly a salesman in the brick department of the Hocking Products Co., of Columbus, Ohio, has been made manager of sales of the coal department of the same company. H. F. White, manager of the brick department left for an inspection trip to the brick plant located at Greendale, Ohio.

SIGNAL HONOR ACCORDED BROWN

Harrison Brown, of the A. P. Green Fire Brick Co. at Mexico, Mo., where he is employed as publicity agent, was honored at the annual Journalism Week of the University of Missouri, when he was elected president of the Alumni Association. Mr. Brown said the organization is to be the first division of the University of Missouri Alumni Association.

GARRISON BACK WITH CLARKSBURG

H. O. Garrison of Clarksburg, W. Va., will again become associated with the Thornton Fire Brick Co., as sales manager and assistant general manager, with offices and display rooms in the Goff Building in the same city. Mr. Garrison was formerly with the company for a period of ten years and resigned about one year ago since which time he has been resident manager for Gano-Moore Coal Mining Co. of Philadelphia.

DEATH TAKES JOSEPH KEELE

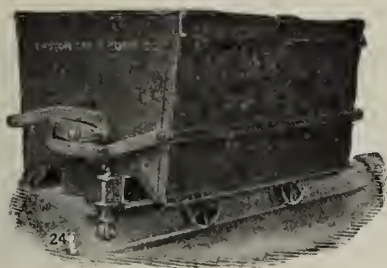
On Monday, June 11, occurred the death of Joseph Keele of the Department of Mines of Canada, well known for his contributions to the knowledge and literature of the clay resources of the Dominion.

Mr. Keele was born 59 years ago at Birr, Ireland, and came to Canada at the age of 15. He was educated at the University of Toronto and for several years was a member of the staff of the School of Practical Science.

In 1898 he was appointed to the Canadian Geological Survey and performed worthy geological work, including notable explorations in the Yukon and the Mackenzie River regions. Later he devoted particular attention to the Pleistocene formation, which finally led to his specializing in the study of clays in general and their utilization.

He was a member of the American Ceramic Society, Canadian National Clay Products Association (Honorary Member), Canadian Institute of Mining and Metallurgy,

EASTON CARS



Gable Bottom Car

Main Office and Works:
30 Holley St., - Easton, Pa.

New York	Philadelphia	Pittsburgh
St. Louis	Norfolk	Savannah
Birmingham	Salt Lake City	Harrisburg
	San Francisco	

EASTON CAR & CONST'N CO.



ELIMINATION OF LOSSES DUE TO KILN GRATE TROUBLES, is the result when CANTON GRATES ARE INSTALLED

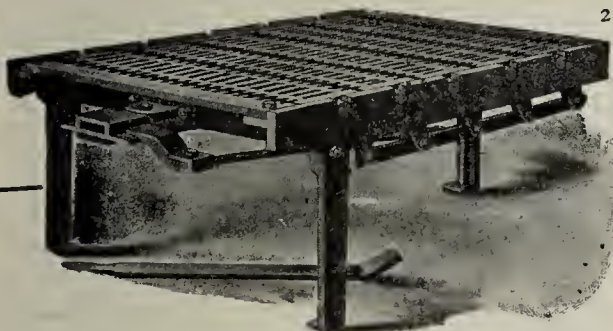
Canton Grates will save you about one-fourth on your fuel bills. They will enable your operators to attain and maintain temperatures without excess use of fuel.

It wont cost you to get complete information today and it may mean profit for you. It has to many others.

Write us



213



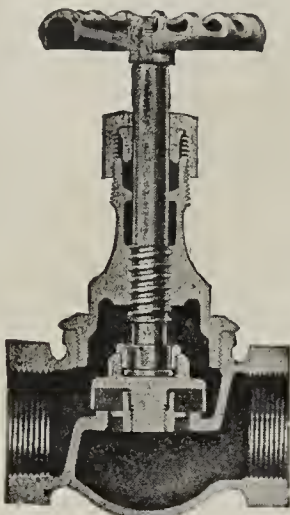
The Canton Grate Co.

1709 Dillon Place, CANTON, O.

Made for maximum service
not merely the average.

TRADE
JENKINS
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Jenkins Bros



Sectional View Fig. 106, Standard Bronze Globe Valve.

Valve Service that you demand

Jenkins Bronze Globe Valves are made for long service—they are strong, and constructed of fewer parts, each ample for the service for which they are recommended.

Jenkins Service can only be expected from genuine Jenkins Valves. Know them by the diamond mark and signature cast on the body of the valves—the symbol of valve perfection throughout the country.

Jenkins Valves are designed, made, and tested, for the severest service in the use for which they are recommended, and include valves of bronze, iron, and steel, for steam, water, or air.

supply it uses everywhere

JENKINS BROS.

NEW YORK PHILADELPHIA
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Always marked with the "Diamond"



Jenkins Valves

SINCE 1864



HY-GRADE MANGANESE CO.
WOODSTOCK, VA.

Miner
and
Grinders

Especially Prepared
for Brick Making

Announcement

The American Dressler Tunnel Kilns, Inc., will have a message for the clay products industry in the near future which will be of considerable interest.

The message will appear in this paper at the earliest possible moment. In the meantime we are, as usual, ready to serve you.



American Dressler Tunnel Kilns, Inc.
1740 East 12th St. CLEVELAND

ROBINSON'S DRYER CARS

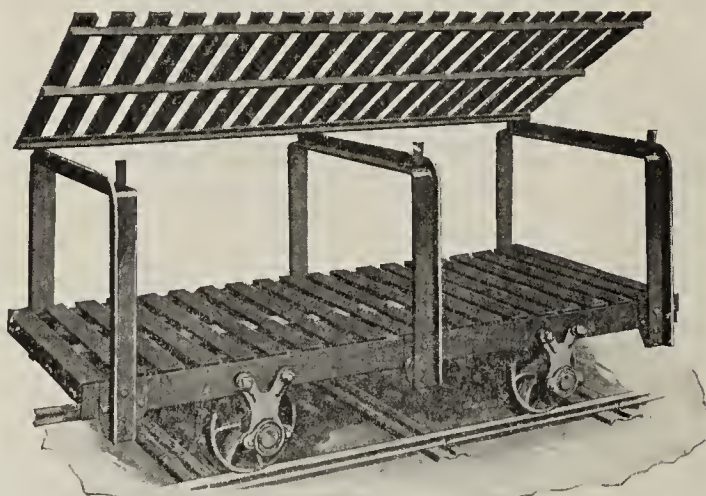
Dryer Cars
Rack Cars
Pallets
Transfers
Kiln Bands
Clay Cars
Steel Rails and Portable Track
Richardson Repress and Dies
Pittsburgh Hot Air Dryer
Radiating Plate and Dryer Castings
Waste Heat Dryer
Brick and Tile Machinery
Elevators
Clay Feeders
Screens
Dry and Wet Pans
Rock and Shale Crushers
Brick and Tile Barrows
Wire Rope
General Supplies and Repairs

Designed for every purpose and built in any size

Ask for complete information on Robinson equipment.

FRANK H. ROBINSON

Dryer Cars and Clay Working Equipment
Factory and General Office: 918 Behan St.,
N. S. PITTSBURGH, PA.



Town-planning Institute of Canada, and the Ottawa Field-Naturalist's Club.

PAYNE GOES TO VAN BUREN, ARK.

D. S. Payne, formerly superintendent of the brick plant at Iola, Kans., has gone to Van Buren, Ark., to aid in the construction of the new Van Buren brick and tile company's plant. Mr. Payne will be assistant manager of the plant. E. D. Young of Oklahoma will be general superintendent. The plant will probably be in operation early in the fall.

CLAY PRODUCTS SALES IN BIRMINGHAM

The records in the office of J. E. Spencer, building inspector for Birmingham, Ala., show that there has been a great increase in the use of brick and hollow tile blocks for building purposes in Birmingham, during the past few years.

These records show that during the past 2½ years large amounts of money have been spent in brick and hollow tile buildings in Birmingham. The figures are as follows: in the year 1920 the amount was only \$252,900, in the year 1921 the amount reached \$1,343,000, in the year 1922 it was \$1,685,356, and up to the present date in the year 1923 it is \$1,306,000, with the prospects of reaching \$2,500,000 by the end of the year. The greater amount of these brick and hollow tile blocks went into residences.

NO CLAY OR LABOR SHORTAGE IN BIRMINGHAM

There has been no change in the price of brick and tile and other clay products in Birmingham for some time. The demand for clay products of all kinds is greater than for some months past, while all plants are operating full time.

The shortage of freight cars which existed for a number of months is now a thing of the past, and clay manufacturers are able to get all freight cars necessary for their shipments.

There is sufficient labor, but good labor, both skilled and common is demanding and receiving a good price. Many negro laborers have recently left that section for the North, and for some time this decreased the common labor supply. Late spring and heavy rains all over Alabama have taken many negro laborers off the farms to the towns and cities.

U. S. REFRACTORIES COMPLETES ROAD

The United States Refractories Co., Inc., has completed the road into its diatomaceous earth deposit near San Luis Obispo, Cal., and has started shipping material to the plant. One new 30 foot down-draft kiln is practically finished, and the other one will be in about three weeks. The company will then have a burning capacity of about 400,000 brick per month. The fact that there are orders ahead to run them for a long time indicates that there is an extensive market open for insulating brick.

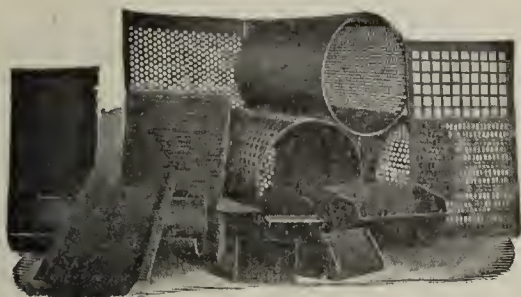
CARBO BRICK CO. COMING BACK

William S. Hyde, receiver for the Carbo Brick Co. at Berlin, Conn., is successfully operating that plant and gradually getting it back on to a substantial financial basis. The outlook for the company's prosperity is very bright, Mr. Hyde said.

NO BRICK SHORTAGE IN CONNECTICUT

The Connecticut Manufacturing Association predict that that state need not fear a shortage of building brick similar to that now seriously handicapping builders in New York. Connecticut has had at its command a sufficient supply of brick for the home market up till this time but has stocked no surplus of the product. Within the next month, the brick industry, it is said, will be in full swing and it is believed that then Connecticut will have plenty of brick for its own use and some to spare for New York construction.

HENDRICK SCREENS FOR ALL PURPOSES



ELEVATOR BUCKETS
CONVEYOR TROUGH and FLIGHTS
STACKS, TANKS,
GENERAL SHEET and
LIGHT STRUCTURAL WORK
LIGHT AND HEAVY STEEL
PLATE CONSTRUCTION

*Ask for your copy of the
Perforated Metal Handbook*

HENDRICK MFG. COMPANY
CARBONDALE, PA.

NEW YORK OFFICE: 30 Church St.
PITTSBURGH OFFICE: 544 Union Trust Bldg.
HAZLETON, PA., OFFICE: 705 Markle Bank Bldg.



*Improve Your Mix
with the*

MARION "RUST SPECIAL" Feeder and Mixer

Remove the uncertainty in your
mixing operation; issue a steady
feed into the crusher by installing
a Rust Feeder.

*Send for catalog describing
Rust Feeder and full line of
Marion clay plant equipment.*

Marion Machine Foundry & Supply Co.
P. O. Box 395
MARION, INDIANA

Every rail that Foster sells

is guaranteed to be straight, of uni-
form section, and free from defects
and deformations. Material
not found to be as repre-
sented may be returned
at our expense.

*Buy your rails and
track equipment
from Foster —
because they
are guar-
anteed.*

**1 Ton
or a
Thousand**

New and Re-
laying Rails,
Frogs, Switches,
Splice Bars, Bolts,
Nuts, Spikes, Tie
Plates, Rail Braces,
Drills and Saws.

L. B. FOSTER CO.
Pittsburgh New York

WAREHOUSES
PITTSBURGH PHILADELPHIA NEW YORK
JERSEY CITY HAMILTON, O.

YOUR PHONE, WIRE OR MAIL INQUIRY GIVEN IMMEDIATE ATTENTION

L.B. FOSTER CO.
PITTSBURGH - PENNSYLVANIA

ROBERTSON-PEASE CO.

CENTURY BUILDING

CLEVELAND, OHIO.

ENGINEERS

We offer our services, as
your engineers, on the de-
sign or construction of:

Tunnel Kilns.

Periodic or Compartment
Kilns.

Insulation of Existing or
New Kilns.

Fuel Systems.

New Plants and Re-Con-
ditioning of Old Plants.

Special Installations for
your particular product.

ENGINEERS

ROBERTSON-PEASE CO.

CENTURY BUILDING

CLEVELAND, OHIO.



TRADE MARK REGISTERED U.S. PAT. OFFICE
JUNE 21ST, 1910

VEELOS

Genuine Balata Belting

The Ideal Belt for Brick Plants

Waterproof—Wearresisting

Non-Stretching—Non-Slipping

Durable—Reliable—Economical

Try one VEELOS. QUALITY will tell

You will always use it

The Standard Belt of the World

MANHEIM MANUFACTURING & BELTING CO.
MANHEIM, PA.

IN EVERY
BRANCH
of
CLAY
PRODUCTS
MANUFACTURE
STEVENSON'S
EQUIPMENT
CUTS THE
COSTS

THE STEVENSON CO.
Wellsville, Ohio
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802 Monadnock Bldg. Chicago, Ill.
6433 Benvenue Ave. Oakland, Cal.

Dry Pans
Wet Pans
Roll Crushers
Sewer Pipe
Presses
Sewer Pipe
Turners
Tile Presses
Press Feeders
Crusher
Feeders
Pan Feeders
Bucket
Elevators
Gravity
Elevators
Brick Barrows
Tile Barrows
Sewer-Pipe
Barrows
Gigs,
Etc.

STEVENSON

NEW BRICK COMPANY IN HAMILTON

Thomas M. Walker, of Hamilton, Ga., heads a new company that is being formed by business men in that town, who will shortly establish there a plant for the manufacture of brick, tile, pottery and so forth. Definite details of the project have not been announced.

UNDERWRITE CERAMIC SCHOOL MAINTENANCE FUND

According to an announcement by B. Mifflin Hood, chairman of the committee in charge of the establishment of the Ceramic Engineering School to be operated in connection with the Georgia School of Technology in Atlanta, one of the Atlanta daily newspapers has underwritten the total sum needed for the maintenance costs of the school during its first year, amounting to \$8,000. Virtually all of the \$20,000 needed for construction of the building and its equipment has also been subscribed, and another meeting of the committee is to be shortly held, at which time definite arrangements for the establishment of the school are to be made.

PETERSBURG PLANT SOLD

For a consideration of \$7,640 the plant of the Petersburg (Ill.) Brick & Tile Co. was sold at auction recently to Warren Churchill of Frederick, Ill., it is reported. Mr. Churchill, it is said, will head a new company to operate the Petersburg plant. He is a practical clay products manufacturer and hopes to have the plant in operation very soon.

AN IDEA FOR SELLING PAVEMENTS

H. M. Rotrock, representing the Alton (Ill.) Paving Brick Co. recently gave the city council of Louisiana, Mo., some valuable information with respect to some extensive paving that the city contemplates doing in the future by showing a cross section of a sample pavement. The councilmen declared that it gave them a very intelligent understanding of paving and a vote of thanks was extended to Mr. Rotrock for his original idea. The paving that Rotrock carried with him consisted of a concrete base of about four inches in thickness, a sand cushion of one inch and vitrified brick, which were laid in with asphalt filler.

CHICAGO FACE BRICK FAMILY GATHERS

Face brick dealers of Chicago, Ill., and their salesmen braved the sweltering heat of the "longest day of the year," June 21, to enjoy one of the tastiest chicken dinners ever served to a bunch of supply folks. But that was not the only feature of the evening's event. The new movie film "The Great Idea" which has just been finished by the Atlas Educational Film Co., and which pictures the building of a home from its inspiration to occupation, was shown. For nearly an hour and a half while it flashed on the screen everybody forgot the heat in the fascination of the film.

Herman L. Matz, vice-president of the S. S. Kimbell Brick Co., insisted upon complimenting W. P. Varney, vice-president, Hydraulic-Press Brick Co., on the excellent selection of food for the occasion but Mr. Varney diverted the credit to Burt T. Wheeler, president, Burt T. Wheeler Brick Co., who he said is the connoisseur of all things good to eat for the Chicago Face Brick Dealers Association.

Charles Bonner, president, Bonner & Marshall Brick Co., and president of the association expressed the appreciation of the Chicago brick folks for the showing of the film and also thanked the salesmen for enduring the intense heat to attend the session. Over 50 salesmen were present.

APPOINT RECEIVER FOR BUTLER

James W. Showalter recently petitioned the court for a receivership for the Butler (Ind.) Brick & Tile Co. Mr.

No. 305
\$4.25 per Doz.
\$48 per Gross Pair



Don't Neglect Your Men

Don't neglect the comforts of your men. Furnish your brick handlers with Tuf-Tanned Kant Rip Mittens or Hand Pads, and watch for the decrease in labor turnover.

Satisfactory working conditions make your men more willing and able to turn out a day's work in a day's time. Send for a trial dozen. If dissatisfied, return without charge.

**DES MOINES GLOVE
& MANUFACTURING CO.**
DES MOINES, IOWA



No. 300, \$7.80 per doz. \$90 per Gross Pair

FREE

To any manufacturer whose men have not been using Des Moines Hand Pads who will clip out the Hand Pad shown here and mail it to us with his letterhead we will send FREE a pair of Des Moines Pads.



"WITH ONE MAN and one ERIE Shovel, we easily get our 300 cubic yards per day. This is sufficient to take care of the daily output at each of our 3 plants, but we could easily increase this output if necessary. In our opinion, the ERIE is the shovel."—Edw. T. Conley, Sec'y, Bradford Brick and Tile Co., Bradford, Pa. (Owners of 3 ERIES.)

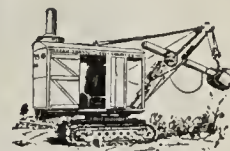
For larger output than the above—500 to 600 cubic yards per day, or more—it is advisable to use two men on the shovel. But when your plant requirements are not too great an ERIE and one man will serve.

We will be glad to send you data showing just what you can do with the ERIE. Write us.

ERIE STEAM SHOVEL CO.

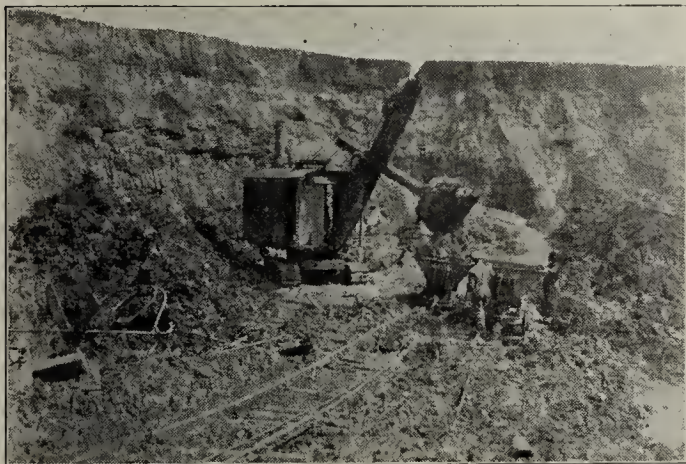
Formerly Ball Engine Co.,
Erie, Pa., U. S. A.

Builders of ERIE Steam Shovels and Locomotive Cranes



ERIE Shovels can be had with broad tired traction wheels, standard gauge car wheels, or on ERIE lubricated caterpillar type mounting. All interchangeable on the same truck frame.

ERIE Revolving Shovels



OSGOOD $\frac{3}{4}$ -yd. H. D. Loading Stiff Clay

OSGOOD

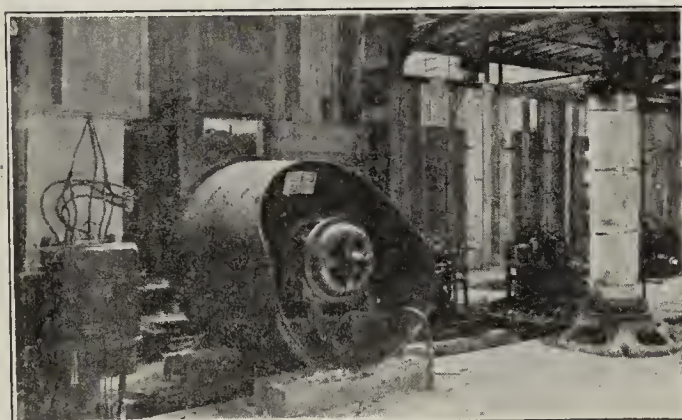
Revolving Steam Shovels

Will solve your clay handling problems. Can be used as a Clamshell, Dragline or Crane—a real general utility machine. Speedy, economical in operation and upkeep, and strong enough to withstand severe usage.

See an OSGOOD at work
 $\frac{3}{4}$ and 1 Yd. Revolving types
 $1\frac{1}{2}$ to 6 Yd. Railroad types
Ask for Descriptive Bulletin

The OSGOOD Company
Marion, Ohio, U. S. A.

Oil Fired Kilns



Require a Blower, Oil Pump and Heater as shown above.

When using our combination gas and oil burner, the blower is used for either oil or gas.

Ask for information regarding
T-J System of Burning Oil.

Tate Jones & Co. Inc.

Furnace Engineers

Established 1898

PITTSBURGH, PA.

New York — Boston — Buffalo — Philadelphia — Chicago — San Francisco — St. Louis

DON'T REPEAT MISTAKES

Russell Continuous Railroad Tunnel Kiln

Make your next installation a Russell Tunnel Kiln and profit by the experience of others who are reaping the benefits of



- Labor Saving
- Greater Production
- Uniform Product
- Fuel Saving

Send us your burning data as basis for an estimate of possible savings with a Russell Kiln.

Russell Engineering Company
 Boston ST. LOUIS New York

Russell

TUNNEL KILNS

Complete Combustion

70,000
Now in
Use

With the scientifically designed Schurs Oil Burners you are assured of complete combustion, a uniform heat and consistent performance.

Join the growing family of Schurs users.

**SCHURS
OIL BURNER CO.**

5330 Santa Fe Ave.
LOS ANGELES
CALIFORNIA

Established 1905

"Be Sure
It's Schurs"



WRITE TODAY
for
BRICK BULLETIN 11

Showalter insisted that the business was being mismanaged and on his pleas, Earl L. Brant was appointed receiver.

CRAWFORDSVILLE PLANT SOLD

A bid of \$325,000 was made recently by interested bondholders on the plant of the Standard Brick Co. of Crawfordsville, Ind. The receivers of the property, the Crawfordsville Trust Co. and David L. Brookie of Frankfort, accepted the bid subject to confirmation by the Circuit Court.

The bidders represent a pool of bondholders who hold an issue of first mortgage bonds and the amount is made upon \$240,633.33 of these bonds and \$84,366.67 in cash. Other bids may be received up to the time set for the sale, June 16, but those who know consider this unlikely.

The purchase plan contemplates the issuance of other securities to care for the creditors, both general and unsecured, in the form of junior bonds and class A stock. It is understood that the bidders plan to reincorporate and begin active production of brick within a few weeks. Some time must be spent, however, in placing the plant in condition to operate as some machinery is still needed to complete the work.

FINDS COMPLEXION CLAY

Argilla complexion clay, dug and marketed in its natural state, is finding a ready market and it comes from Audubon County, Ia. Mr. Koch, manager of the Audubon brick plant—far cry from brick plants to beauty parlors—while digging clay for brick, discovered a clay of unusual color and texture. Samples were sent to experts who said it was of very good quality.

IOWA RATES FOUND UNREASONABLE

Freight rates on brick, hollow building tile and drain tile from Rockford, Sheffield and Hampton, Ia., to destinations in the same state and in Minnesota, Wisconsin, South Dakota, North Dakota and Nebraska, have been found unreasonable to the extent that they exceed the rates for similar distances from Mason City, Examiner T. J. Butler Advised the Interstate Commerce Commission June 18 in a tentative report on the complaint of the Rockford Brick & Tile Co., Sheffield Brick & Tile Company, and Hampton Brick & Tile Co. The Hampton plant has been projected but has not yet been erected.

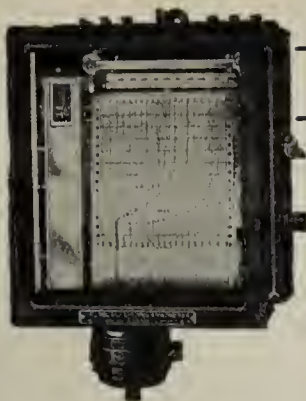
WHAT CHEER OPERATES CONTINUOUSLY

The What Cheer (Ia.) Clay Products Co. is now running night and day in an effort to fill orders received this spring. In a single week 50 carloads of the finished products were shipped out. Drain and sewer tile is manufactured ranging in size from four to 30 inches. The vein of clay from which the tile is made is 40 feet in thickness and it is found below the coal deposits that once were so abundant in that section but in recent years became extinct from vigorous mining. A quantity of the clay was sent to a pottery in England a few years ago that it might have a thoro test and some high class pottery was produced from the samples sent.

IOWA'S OLDEST PLANT AT DUBUQUE

What is believed to be one of the oldest brick plants in Iowa is being operated at Dubuque, Ia., and has been in operation since 1853.

In 1867 John Heim the elder took the yard over and commenced the manufacture of brick on a more extensive scale. On the same date John L. Heim, the present owner, was born in the city of Dubuque. At that time there were six other yards making brick. When the present owner took over the business there were ten other yards in operation. Today there is but one.



Heat Controlled *means* Money Saved

KILN temperatures that rise too fast or too slow or do not reach the proper degree mean waste of time, fuel, and labor, as well as a waste of ware.

BRISTOL'S PYROMETERS

enable your fireman to control heat temperatures up to 3000° F. at all times.

They accurately indicate and record, and are absolutely reliable.

Ask for our 68-page catalog AE-1401.

—THE BRISTOL COMPANY—
WATERBURY, CONNECTICUT

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INDICATING

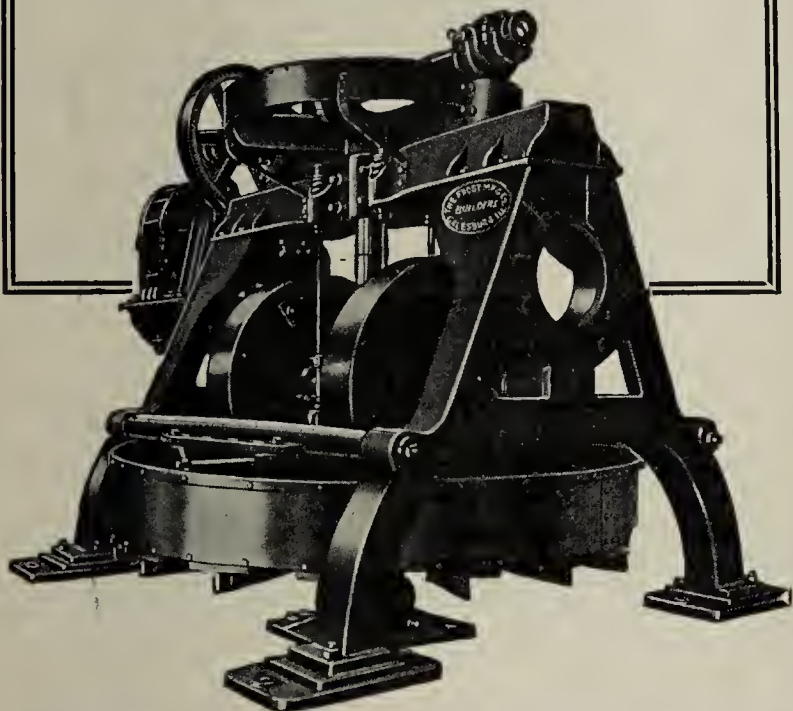
RECORDING

PYROMETERS

BETTER QUALITY WARE

That is the result when Frost
Dry Pans are put on the job.

THE FROST MFG. CO.
GALESBURG, ILLINOIS



QUALITY ECONOMY SERVICE

ATLANTA, GA

BALTIMORE, MD.

BOSTON

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SAN FRANCISCO

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MONTREAL

MINNEAPOLIS

NEW YORK CITY

MORSE Silent Chain Drives are 98.6% efficient for small or large drives. No worry about belt trouble, slippage of power and loss of production where Morse Chain Drives are installed.

Write us if you have a transmission problem. We give engineering service without any obligation.

Drop a Card to the Nearest Morse Engineer

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Largest Manufacturers of Silent Chains in the
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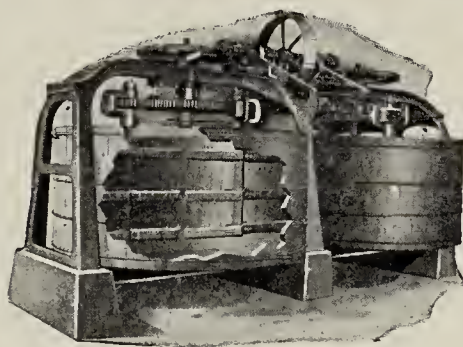


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TORONTO

WINNIPEG, MAN

CHARLOTTE, N. C. CHICAGO CLEVELAND KANSAS CITY, MO



Five Tons of Material Blunged in Less Than One Hour—

This is the guaranteed performance
of this remarkable machine—

THE MUELLER BLUNGER

Scientifically constructed, improved planetary and unique paddle movements, ball-bearings at all moving parts, small amount of power required—these are just a few of the many features of this dependable machine.

Send for Catalog

THE MUELLER MACHINE CO.

23 Ward Ave.

TRENTON, NEW JERSEY



"Firemen's Delight"

**—Spend five minutes and
save a summer—**

Do not waste the summer
worrying about fuel.
Write us for some Black
Betty. It has been tried
—the verdict is—an envi-
able reputation among
Clay Product Manufac-
turers.

- Shaker Screens
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- Low Ash
- Low Sulphur
- High Heat Units



*Originating Railroad—C. & E. I.
Clinton, Indiana*



Zimmerman Coal Company

609 Tribune Building

Long Distance Wabash 9921

Terre Haute,

Indiana

John L. Heim is the head of the John L. Heim & Son brick products, and is known as a man who is "straight from the shoulder," and whose word is as good as his bond. He is a master in the manufacture of brick and has an excellently equipped plant. At the present time he is installing additional up-to-date machinery. Mr. Heim's son, John G., is associated with him in the business.

BRICKLAYERS SCHOOL IN BOSTON

Building trades contractors of Boston, Mass., plan to hold a meeting to consider the plans for a school in that city for teaching bricklaying. The undertaking is proposed to pattern after the school in Cleveland. Due to the alarming shrinkage in the demand for brick and other clay products in the building industry and on account of the lack of trained men to do the construction work, the brick manufacturers were moved to call this meeting.

MICHIGAN BUILDERS TRAINING MASONS

The Associated Building Employers of Michigan are right in line with the progressive movements instituted in many places in the country to provide bricklayers' schools for the training of apprentices and future craftsmen. The Michigan school is located at Grand Rapids and has 45 men at present enrolled, with new students coming in steadily. The boys working there are doing and being taught real constructive work on actual projects such as houses, garages, and so forth. The school charges a tuition fee of \$8 per month for night classes, these classes running two nights one week and three nights the next. Day classes have just been started and tuition fee of \$100 for six months is being charged. Under this arrangement men will come five days a week, work eight hours a day and it is expected, that at the end of six months they will be fairly good bricklayers.

SYNTHETIC BRICK IN DETROIT

By the middle of July the Delta Brick & Tile Co., Detroit, Mich., will be producing concrete brick, according to announcement made by W. A. Fay, principal owner of the company. The Delta, which will specialize in cement products, notably brick and tile, has been operating under another name for several years. It has been taken over by Mr. Fay, who is one of the best known of building supply men in the Middle West, and already is making a name for itself in the immediate Detroit district.

The brick to be made will be used for both facing and common brick purposes, and will be finished in natural colors. Other colors are being considered, but their use will be a later effort.

Mr. Fay is perhaps best known among building supply and contractor interests as the head of the Cuyahoga Builders Supply Co., which some years ago was united, with other firms, into the Cleveland Builders Supply & Brick Co., Cleveland, Ohio.

BUY PLANT AT FARBER, MO.

J. W. Gallaher and associates of Mexico, Mo., have purchased the plant of the North Missouri Fire Brick Co. at Farber, Mo., it is reported. It was announced that the purchase price was \$18,000. Mr. Gallaher said that they would continue to operate the plant. About 40 men are employed by the company.

THE CLAY INDUSTRY IN GREAT FALLS

The city of Great Falls, Mont., is now enjoying the manufacture of brick as one of its leading industries, and with its abundant deposits of clay beds it promises to expand even greater in this field. At present, Great Falls has two brick concerns, including the Anaconda Copper Co., the latter

Nuttall

Facilities

We manufacture Helical Gears from 2" minimum to 138" maximum diameter, any pitch up to 1 D. P.



Silent Helical Gears

We manufacture spiral gearing from 1" minimum to 138" maximum diameter, any pitch up to 1 D. P., and have complete heat-treating facilities.

R.D. NUTTALL COMPANY
PITTSBURGH  PENNSYLVANIA

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Eliminate Trouble Don't Combat It

With a Schaffer Poidometer scientifically weighing and mixing your clay and water a consistent mix is assured.

Drying and burning losses result largely from changing conditions in the clay mix. Keep moisture content constant in the green ware and one kiln may be burnt the same as the previous one.

Standardization of conditions and processes in a clay plant is the biggest step toward a reliable product.

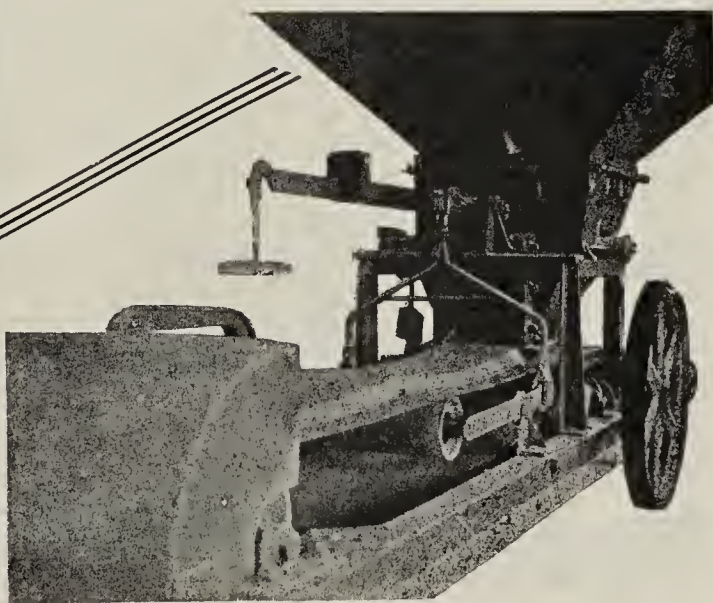


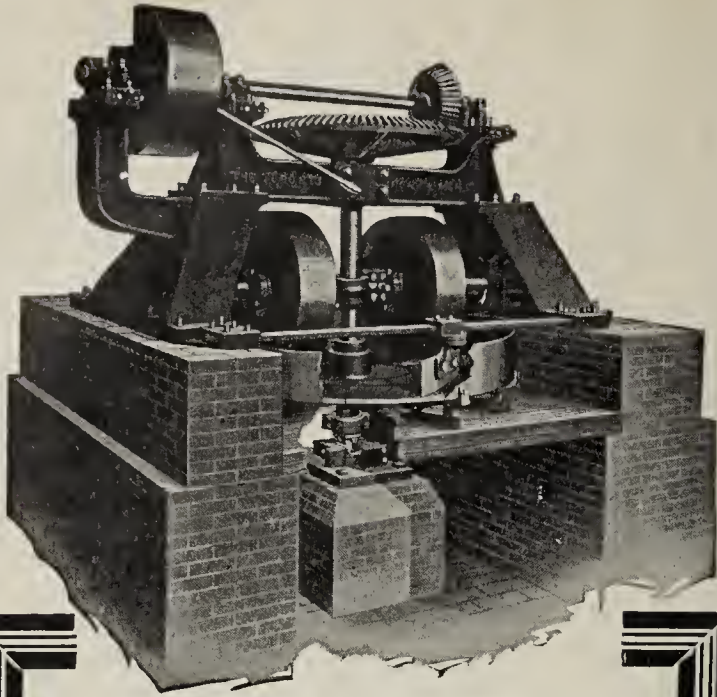
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*Write for
list of successful
installations*

Schaffer Engineering & Equipment Company

2828 Smallman Street
PITTSBURGH, PA.





TORONTO DRY PANS

Accessibility of Wearing Parts—

When dry pans are mentioned, whether it be at a brick manufacturers' convention or some less formal gathering, some one is sure to say: "What I like about the Toronto Pan is its accessibility."

As the designers of Toronto pans have improved their product to keep pace with new ideas, they have always given just thought to accessibility of wearing parts. Screen plates, grinding plates, gear and pinion all removable with a minimum of effort.

The
**TORONTO FOUNDRY
AND MACHINE CO.**

TORONTO,

-

OHIO

having a capacity of more than 50,000 brick per day and employing about 45 men in this particular department. This company in the near future will also add white brick to its products. The Great Falls Brick & Tile Co. produces a similar line of products and brick from both plants have been used in construction of many buildings of the city, and are also being used in construction purposes in vicinities of Montana.

STRIKE CLOSES SAYRE & FISHER PLANT

The Sayre & Fisher Co., Sayreville, N. J., has closed its plant due to a strike of employees, totaling about 700 men. A wage demand of 20 per cent. was made by the operatives and altho the company has agreed to an advance of ten per cent., no immediate settlement is in sight; the men have offered a compromise of 15 per cent. increase, but this has been flatly refused by the company. The closed shop, also, is said to be responsible for the strike action; to run the plant on this basis, however, is stated to be impossible by D. J. Fisher, treasurer of the company, who says that a large portion of the men work at the yard only about seven months a year and then seek employment elsewhere. Accordingly, the labor turnover is large. In commenting on the earnings of the men under the former wage basis, Mr. Fisher says: "We made a very careful survey of our plant before the strike and found that we had men completing their tasks on a piece-work plan in as short a time as three hours and ten minutes, obtaining \$4.25 for that amount of work. Other tasks take from 4 to 5½ hours, and the men receive for these tasks anywhere from \$3.95 to \$4.27. Our plant starts operating at seven o'clock and it is rare that you see any men about after one p. m. Most of the men seem satisfied in making a single task, tho some do more work and consequently would be working a little later. If the men desired, they could earn on the present wage basis from \$6 to \$9 or more a day."

One of the largest, if not the largest, orders for represses that has ever been placed, was let recently by the Sayre & Fisher Co., Sayreville, N. J., to the Frank H. Robinson Co., Pittsburgh, Pa. This order consists of eight of the well-known Richardson Represses.

The success that the Sayre & Fisher Co. has had with the same brand of represses in the past, led them to place this additional order when they required more of these machines.

DUFFNEY SUSTAINS FIRE LOSS

About \$5,000 damage at the Duffney Brick Co., Mechanicsville, N. Y., recently was caused, it is thought, by a leak of oil which is used for fuel to burn the brick. Part of a kiln shed at yard No. 1 together with a large number of brick, were destroyed.

PRODUCTION CONTINUES DESPITE STRIKE

At Newburgh, N. Y., the Rose Brick Corp. is turning out 150,000 brick daily and the Jova yards 160,000. The production is a good answer to the strike of bricklayers in New York City, indicating that the demand for brick has not slackened a bit. Orders for more brick than can be produced are being received.

BENNER STARTS PRODUCING

Production has been started at the new plant of the Benner Brick Co., of Carthage, N. C., a new company formed recently with \$200,000 capital. An existing plant was obtained by the company at Carthage and extensive improvements made, entailing an investment of several thousand dollars. Present capacity, according to B. H. Benner, who was named president of the company, is around 20,000 brick, but it is expected to increase this greatly later.

A CLAY DIGGER FOR THE SMALL PLANT



The Bay City Excavator is available at a low price, under \$3,000, to the small plant operator.

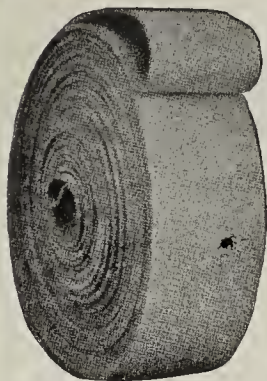
If you are looking for clay pit capacity without tying up capital, the Bay City solves your problem, as it has for hundreds of other operators whose capacities range from 25,000 to 100,000 brick a day.



THE
Bay City Dredge Works
BAY CITY, MICH.



TEST *by* TONNAGE *not by time.*



**GREEN
DUCK
BELTS**

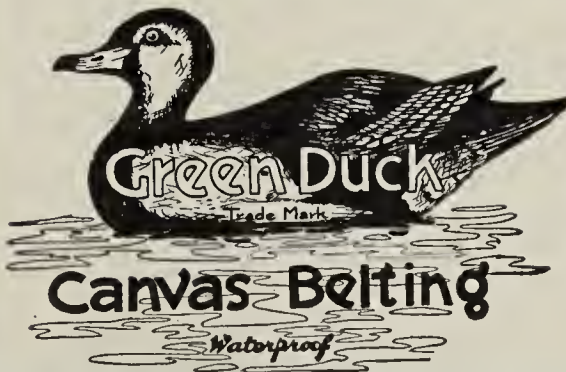
CONVEYING—

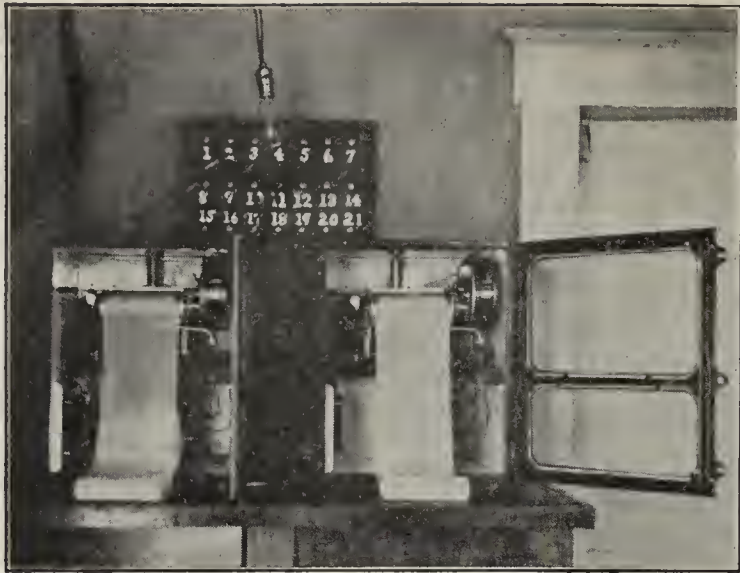
It's the tonnage that a belt has hauled that tells the story of its life; not the length of time it has served, including seasonal declines and shutdowns.

Tonnage records of Green Duck belting under all weather conditions have convinced operators that Green Duck has solved their knotty conveying problem. Whether it be from pit to plant, or inside the plant, Green Duck leads the field.

Write for samples and prices.

The Allied Belting Co.
GREENVILLE, OHIO





"Our Overburns^{and} Underburns^{are} Nil"

The Independence Paving Brick Co., of Independence, Kansas, running 19 kilns on paving brick are strong believers in

WILSON-MAEULEN PYROMETERS.

Read what Mr. Harry Jiencke of the above company volunteers:

"We find the installation of Wilson-Maeulen Pyrometers the best investment we ever made. Our overburns and underburns are nil. We are loading 92 per cent. No. 1 brick from kiln to car and we think we can increase this 2 per cent. more.

Our shale needs between 2,200 and 2,300 degrees for complete vitrification. This was hard on the kilns but with the installation of Wilson-Maeulen Pyrometers we are saving our kilns."

Write to our Engineering Department for details of superiority of Wilson - Maeulen Pyrometers.



Write our Engineering Dept. for advice
and estimates. No obligation.

WILSON-MAEULEN COMPANY
738 E. 43rd St. New York

CRUME BUILDS NEW UNIT

The Crume Brick Co. of Dayton, Ohio, manufacturer of sand-lime brick, is getting a number of large orders on out of town contracts. Business has been so good that a new unit has been added to the plant at Millers Ford.

MOVES COLUMBUS OFFICE

The Columbus, Ohio, office of the Canton Brick & Fireproofing Co., formerly located at 39 West Long St., has been moved to the offices of the Columbus Fire & Face Brick Co., 16 South Third St., J. C. Forse is manager of the Columbus office.

CANTON BUSINESS SLACKENING

The brick industry in the Canton, Ohio, district shows signs of slackening for the first time since early spring. A survey of plants in the Canton district this week revealed that operations are no longer capacity altho prospects for the remainder of the summer are exceptionally good. Contractors have almost bought their seasons needs and for this reason orders are not so plentiful. Brick buying started earlier this year due to the fact that a phenomenal season in building was predicted. High prices of materials retarded this boom, it is said.

Prices remain the same and there is little indication of a change the remainder of the summer. Demand for paving block continues strong and road construction awards are still being made in all Counties near Canton.

INVENTS CLEVER MACHINE

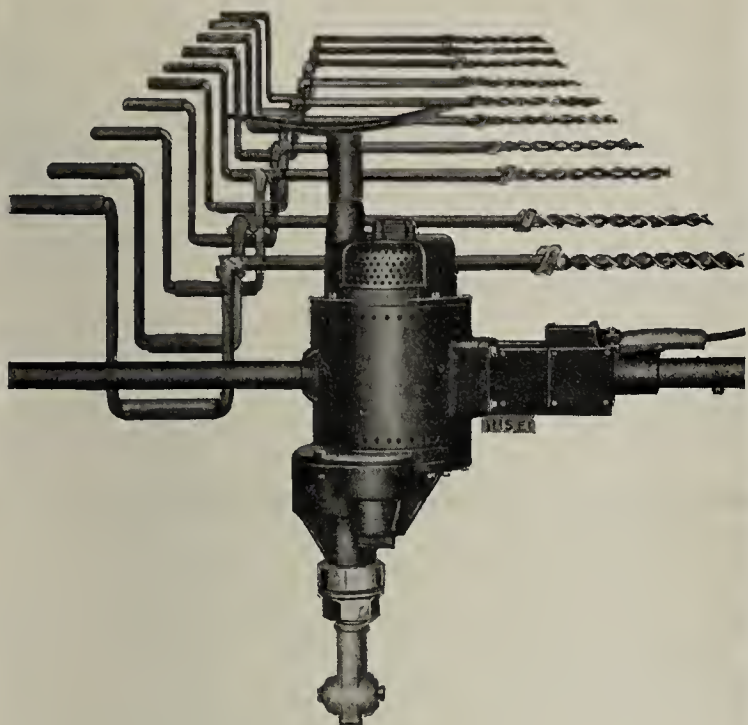
The Central Refractories Co., which has headquarters in Columbus and with plants in Ohio and Pennsylvania has devised a new machine at the New Lexington plant for the making of buff brick, which is proving quite interesting to manufacturers. The machinery was designed by president C. B. Young of the company and consists of an attachment which will make the interior of the brick shale and the exterior of buff burning clay. The company has about a 30 foot deposit of shale and underneath a deposit of about 15 feet of buff clay. The machinery which is being patented by the company consists of an attachment which will feed the buff clay at the outlet of the usual stiff mud machine. Two pug-mills are necessary. Mr. Young and his corps of engineers had been working for more than a year on the plan and the company has been making the new style of buff brick for about 60 days. Later it is planned to make a manganese brick by the same process.

HOW AKRON'S CLAY INDUSTRY DECLINED

The question was put to John J. Starr, treasurer of the Robinson Clay Products Co., Akron, Ohio, "Is it true that the clay industry in Akron is enjoying the greatest prosperity of its history?"

"I should hardly say that it is," he replied. "Conditions in Akron are hardly conducive for that, for the clay industry is not what it was five years ago in Akron. In the past five years any number of manufacturers of our line have left Akron to locate elsewhere or have quit production entirely. The Robinson company itself formerly had five plants here and now maintains only one, the others having been taken to other localities.

"This is a direct result for one thing of too much labor competition. It used to be our practice to engage young men as apprentices and pay them a dollar a day until they had learned something. When the rubber plants began to go full tilt and pay high wages the class of labor we needed was offered three or four times as much as we could possibly afford.



Ten Hand Augers or One Little Giant?

HOW do you drill your shot holes?

The many operators in the brick and clay industry who have watched the performance of their Little Giant Electric Drills and charted the records made by these powerful, fast-cutting machines have found that, on the average, a Little Giant does the work of ten hand augers with a corresponding reduction in drilling costs.

Other operators who have no specific data on the performance of their Little Giants, tell us how these electric drills have saved both time and money for them and also how they have helped to solve their many drilling problems.

After all, what users say counts most and our files show, conclusively, that Little Giants will serve your drilling needs.

These Little Giant Electric Drills are made in four sizes and are wound for operation on D. C., or single, two or three phase A. C.

Address nearest Branch for trial drill

Chicago Pneumatic Tool Company
Chicago Pneumatic Building, 6 East 44th St., New York
*Sales and *Service Branches all over the World*

*Birmingham	Cleveland	*Los Angeles	*Philadelphia	Seattle
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BOYER PNEUMATIC HAMMERS • LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS • VACUUM PUMPS • PNEUMATIC HOISTS
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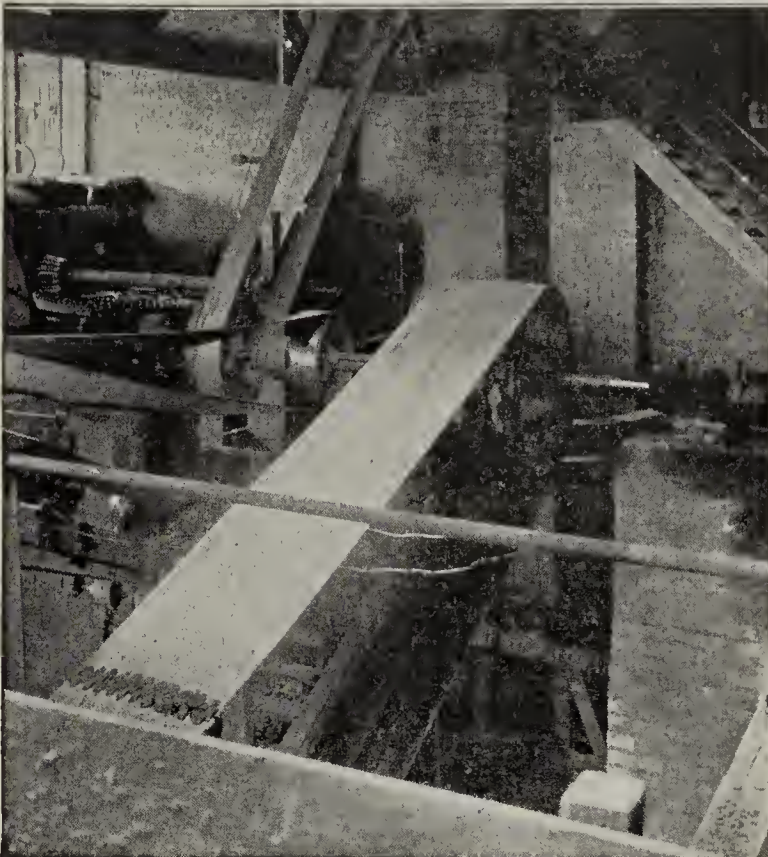
LITTLE
Electric



GIANT
Drills



GOODYEAR MEANS GOOD WEAR



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On all the hard drives for which the brick and clay industry is noted—the main drive, the crushers and grinding pans, pug mills and brick machines, represses and auxiliaries—and in all conveying and elevator duty, Goodyear Belts have an earned reputation for powerful, trouble-free service and long, economical life.

TRANSMISSION

Goodyear, Klingtite, Glide

CONVEYOR

Goodyear, in distinctive types for specific services

HOSE

Air, Water, Steam, Fire and Mill

PACKING

Asbestos and Rubber Sheet

PUMP VALVES

Goodyear Belts and other mechanical goods for the brick and clay industry are scientifically specified to their work under your conditions of service by the G. T. M.—Goodyear Technical Man.

For performance records or any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

Goodyear Means Good Wear

GOODYEAR
BELTS • HOSE • VALVES • PACKING

"Hurricane" Dryers



TUNNEL DRYER FOR INSULATORS

A QUARTER of a century's experience in the drying field coupled with up-to-date equipment and the best of service has placed "Hurricane" Drying Equipment in the lead.

Our engineers are prepared to submit specially designed machines where standard machines will not do.

Automatic Mangles
Automatic Stove Rooms
Tunnel Dryers
Sagger Dryers
Electrical Porcelain Dryers



The Philadelphia Drying Machinery Company

3351 Stokley St. Philadelphia, Pa.

Western Agency: 1814 Continental Bank Building, Chicago



AUTOMATIC MANGLE FOR DIPPED DINNERWARE

"The clay industry had its choice of taking unsatisfactory foreign labor or getting into the fields where the labor competition was not so acute. It took the latter course.

"With the spreading out of the field of clay products manufacturing in search of cheaper labor and also of new clay deposits, which have begun to give out locally, has come another problem—that of transportation. Clay products are heavy and freight rates are high. This concern for instance can hardly think of taking an order west of the Mississippi.

"The clay industry as a whole, however, is enjoying a great increase in business as a result of the building boom."

M. K. FRANK MOVES OFFICES

M. K. Frank, Pittsburgh, Pa., has moved his offices from the Frink Building to the Union Trust Building. The new offices are larger and better suited for handling the trade.

AUBURN BUILDING NEW KILN

The Auburn Shale Brick Co., Gettysburg, Pa., is arranging for the construction of another kiln at its plant, due to the heavy demand for production. The company is now completing a new kiln and making extensions for greater output and will place the installation in service at the earliest possible date. The present production approximates 100,000 brick a week.

PENNSYLVANIA COMPANY SOLD

Arrangements have been made for the sale of the plant and property of the International Clay Products Co., Clermont, McKean County, Pa., by the trustee in bankruptcy. It will be taken over by interests, it is stated, that will operate the plant for the manufacture of sewer pipe, conduit pipe and other specialties as regularly produced by the old company. The plant consists of a number of buildings on a tract of about 300 acres of land, fully equipped in all departments. There are 12 kilns, a crusher building, 150 x 176 ft., clay house, boiler house and other mechanical structures. John A. Clay has been acting as trustee in bankruptcy.

TO OPERATE DAY AND NIGHT

The Texas Clay Products Co., a new brick plant at Malakoff, Tex., has been opened and is producing brick at the rate of 20,000 a day. Demand is excellent and it is planned to put on a night shift, operating the plant continuously.

TESTING YOAKUM, TEX., CLAYS

The Chamber of Commerce at Yoakum, Tex., is having samples of the various clays occurring there tested for their value as raw materials for clay products. If the tests are satisfactory an effort will be made to have a plant established there.

BUSK BUYS HAMILTON SITE

The Ontario Shale Products Co., of which H. Busk, of Inglewood, is manager, has obtained a site at Hamilton. Mr. Busk purchased the equipment of the plant at Rymal on Hamilton Mountain and this will probably be used as the basis for equipment for the new plant at Hamilton.

DRAIN TILE BUSINESS GOOD

The Port Haney Brick Co., Ltd., of Vancouver, B. C., reports that its run of agricultural drain tile for the first three months of this year was greater than ever before. In this period the company has sold 100,500 of three-inch and 96,300 of four-inch drain tile, all of which are used practically within a radius of 30 miles of the plant.

NEW COMPANY IN QUEBEC

La Compagnie de Brique et Breton, Ltee, with head office at Amos, Que., has been incorporated with a capital of \$49,900 to manufacture brick, and so forth.

BRICK *and* CLAY RECORD

Vol. 62, No. 13

Chicago

June 26, 1923

Published Every Other Tuesday at 407 S. Dearborn Street, Chicago. Subscription Price \$3.00 per year. Entered as Second Class Matter January 2, 1911, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

"Use LOUISVILLE DIES *Exclusively"*

Says Mr. H. C. Downer, Vice-President and General Manager of The Malvern (Ohio) Fire Clay Company. His letter reads:

"Practically every die that we have used in the past ten years has been manufactured by The Louisville Machine Manufacturing Co., and we have found them very satisfactory in most, if not all, cases. We would hesitate to place our order with any other concern for dies as we believe that they are prepared and equipped to make dies that will suit our purpose better than anyone else we know of."

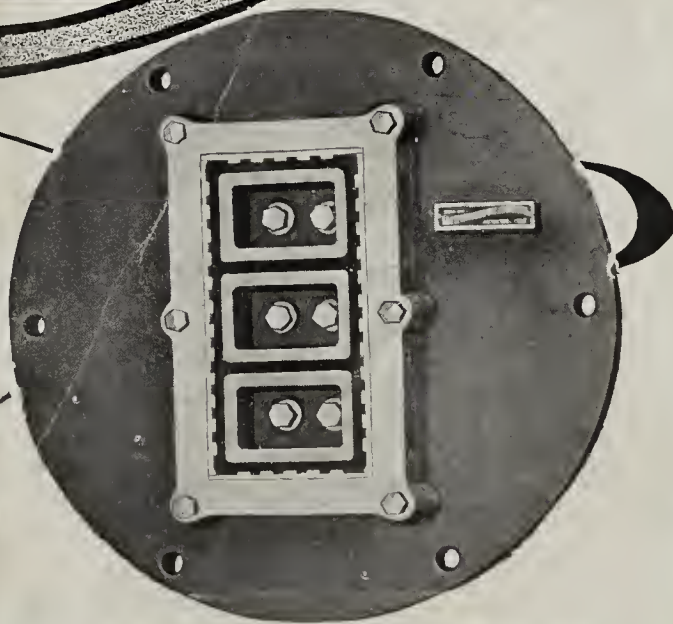
Dies are our specialty. With our efficient and well-equipped shop we guarantee our workmanship.

We design dies with a view of meeting the characteristics of your machine and the raw materials you use.

TRY US.

The LOUISVILLE MACHINE
MANUFACTURING CO.
LOUISVILLE, OHIO

*"If it's Dies
You Want
We Make'em"*



Marketing Face Brick

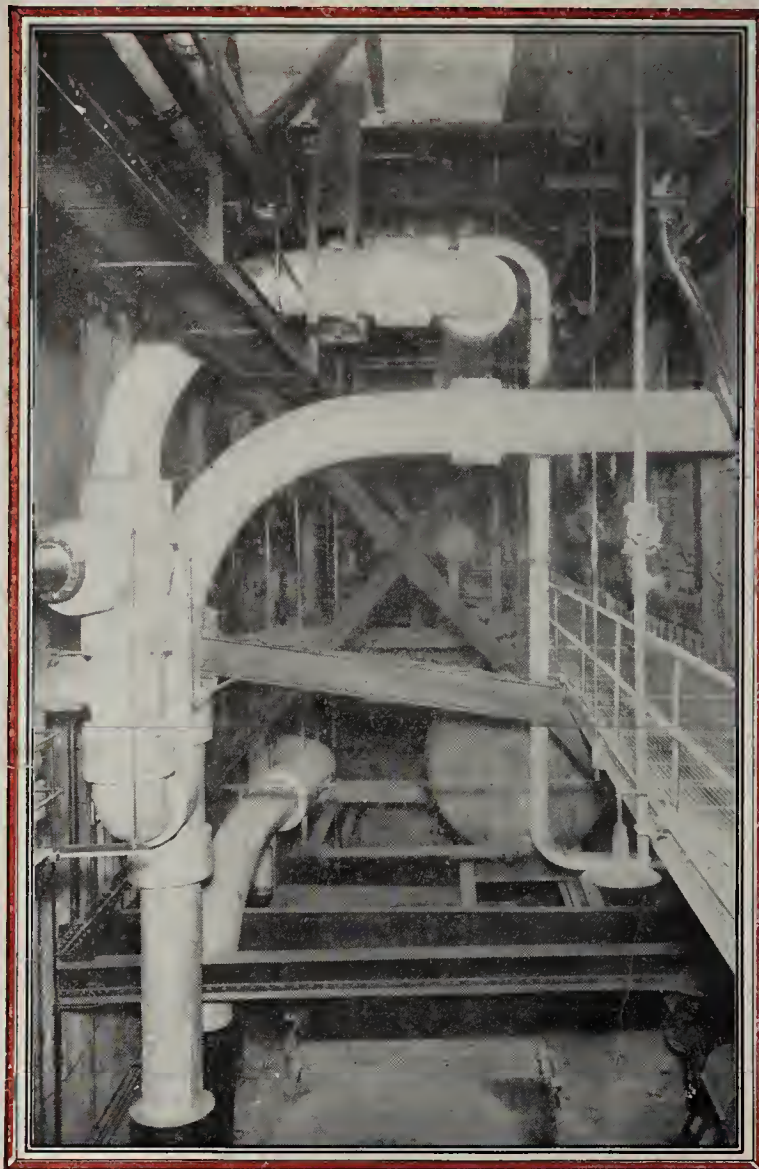
Construction and Adjustment of Dies

Shorter Time, Lower Costs to Install Piping

Crane service affords a single source for the supply of your piping equipment. All valves, fittings, pipe bends and steam specialties required for a plant of any size can be delivered at the same time.

As an additional means of saving time and expense, Crane standards of manufacture insure immediate and accurate fits in assembly. Specified dimensions in Crane equipment are exact. Complete piping systems in which all units fit smoothly into place, as they did in the trial assembly at the Crane factory, are being installed daily for every class of service.

In the making of pipe bends, particularly, Crane experience has evolved unusual methods of production which guarantee accurate measurements. Crane factory inspections and tests protect you always against weak or defective material.



CRANE PIPING IN THE CALUMET STATION OF COMMONWEALTH EDISON COMPANY, CHICAGO. ENGINEERS, SARGENT AND LUNDY

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO

Branches and Sales Offices in One Hundred and Forty Cities

National Exhibit Rooms: Chicago, New York, Atlantic City

Works: Chicago, Bridgeport, Birmingham, Chattanooga and Trenton

CRANE, LIMITED, MONTREAL. CRANE-BENNETT, LTD., LONDON

CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO

CRANE, PARIS



Efficiency Wash Sink with Pedal Valves

TIME MOVES

*Every Tick of the Clock
Means Definite Waste*

Radiating from every piece of uninsulated heated equipment is part of the fuel you burn for productive work—lost and wasted!

Sil-O-Cel Insulation forms a barrier to heat waste, holds it within the equipment, saving fuel, increasing capacity, maintaining uniform and easily controlled temperatures.

Every instant of operation without insulation means definite waste. Why postpone insulation?

Sil-O-Cel is low in cost, easily installed, and in fuel saving alone, pays for itself in from six months to a year.

Write for blueprints and complete information. Mail the coupon or ask for Bulletin B-5A



CELITE PRODUCTS COMPANY

New York-11 Broadway Chicago-53 W. Jackson Blvd. San Francisco-Monadnock Bldg.
Offices and Warehouses in Principal Cities
CELITE PRODUCTS LIMITED, New Birks Bldg., Montreal, Canada

Celite Products Company

Gentlemen: Send
blueprints and Bul-
letin B-5A on Sil-O-
Cel Heat Insulation for

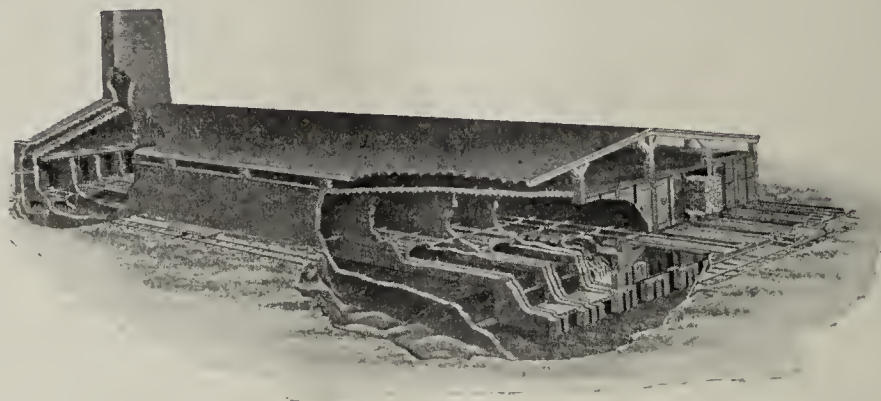
.....
(Give type of equipment)

Name.....

Company.....

Address.....

INTERNATIONAL DRYERS

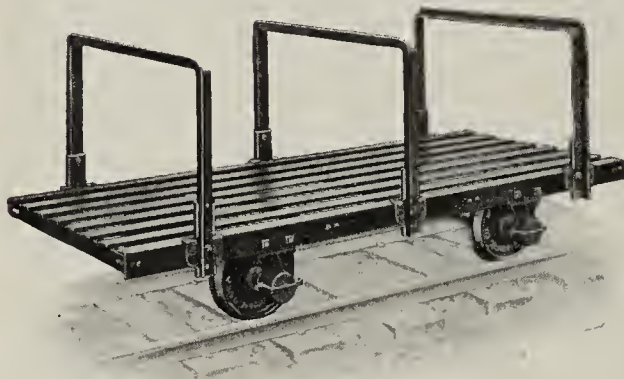


FOR

BRICK - TILE - HOLLOWWARE

— AND —

Other Products



INTERNATIONAL DRYER CARS
ALL STYLES



INTERNATIONAL RADIATOR

Notice angle construction of Radiator at sides and arrangement for asbestos cord sealing at ends. A smoke-tight radiator is the result.

Ask for Bulletin No. 40

International Clay Machinery Co.

DAYTON, OHIO, U. S. A.

Pittsburgh, Pa.

New York

Toronto, Ont., Canada



Tunnel Type—"Proctor" Mould-Release Dryer, equipped with monorail truck system of conveying.
WESTINGHOUSE HIGH VOLTAGE INSULATOR CO., DERRY, PA.



Automatic Type—"Proctor" Mould-Release Dryer, equipped with continuous shelf system of conveying.
THE R. THOMAS & SONS COMPANY, EAST LIVERPOOL, O.

A Paying Short Cut in Insulator Production

"PROCTOR" MOULD-RELEASE DRYERS

FOR drying all sizes and shapes of electrical porcelain insulators in moulds preparatory to trimming, "Proctor" Dryers are efficient beyond comparison.

With these machines, large insulators are being released from the moulds in 4 hours or less, uniformly and perfectly dried for trimming. Small insulators are being dried in less than 1 hour.

Production on presses and jiggers is increased because labor-motion is reduced, moulds are mechanically conveyed and handling is systematic throughout.

The automatic type of "Proctor" Dryer has self-contained continuous conveyors which receive the filled moulds

directly at the presses, release the ware close to the trimming tables and carry the empty moulds back to the presses. A near approach to this continuous process is obtained in the tunnel type of "Proctor" Dryer when the system of trucks or over-head carriers is extended to the presses, jiggers and trimming tables.

"Proctor" Dryers save a tremendous amount of space, making room for new machinery. Quick mould turnover means that fewer moulds are required. The moulds are kept in uniform condition and are handled less—their life is extended.

In a word, "Proctor" Mould-Release Dryers cut costs to the bone.

PROCTOR & SCHWARTZ, Inc.

Seventh Street at Tabor Road
PHILADELPHIA, PA.





THE REAPER!

Suppose farmers refused to use McCormick reapers because of their cost as compared to hand scythes—what would agricultural and world conditions be today?

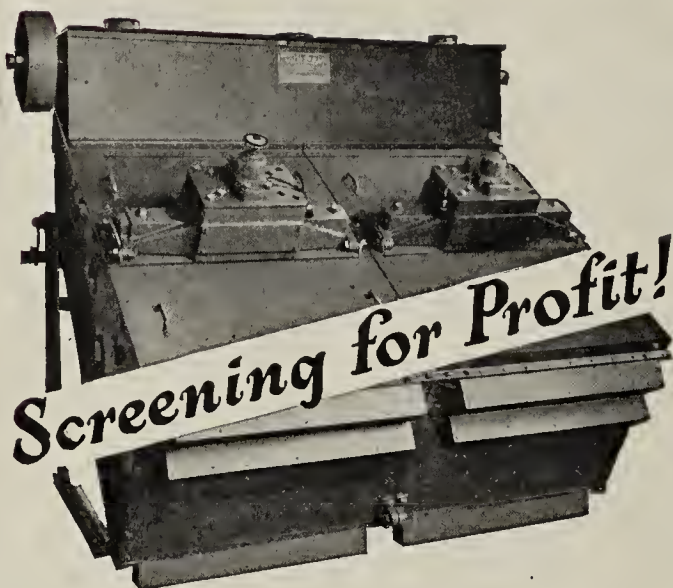
Though more capital is necessary to purchase a reaper, the immensely greater output as compared to a hand scythe makes it an investment that pays big dividends for years to come.

The HUM-MER Electric Screen is an investment for producers of crushed or screened material. It assures increased output, better quality of product, and greater profit.

To look upon a HUM-MER as an expense is fundamentally wrong, for no thing can be an expense and an investment at the same time. Most HUM-MER installations pay for themselves within a few months time.

Let us show you how to "screen for profit" with the HUM-MER Process. It will place you under no obligation and the results may prove a revelation to you.

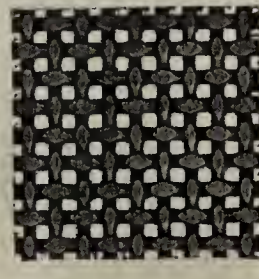
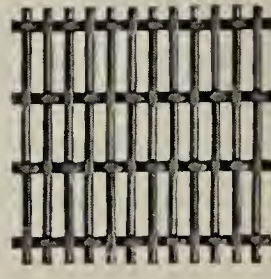
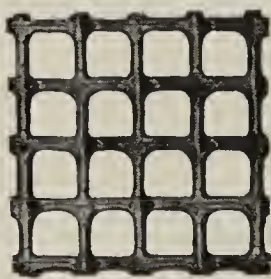
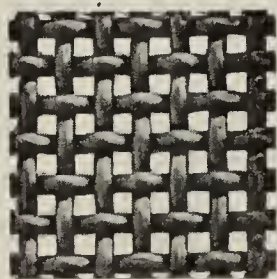
Catalogue 45-B mailed upon request



Type 31
6-Foot, 2-Surface, Screw Conveyor Feed
HUM-MER Electric SCREEN
Screens any material wet or dry from
2½ in. opening to minus 200 mesh

THE W. S. TYLER COMPANY, *Cleveland, Ohio*

Manufacturers of Woven Wire Screens and Screening Equipment





More Than Satisfactory

"The Thew shovel has certainly been more than satisfactory to us as it has done all that we expected of it. We are willing to be classed as Thew boosters."

POWELL & MINNOCK, Coeymans, New York

That's what Mr. Minnock wrote us at the close of last season. He had finished a top notch year and felt that the Type 00 ($\frac{1}{2}$ yard) gasoline Thew had played no small part in the matter since it kept production at a maximum and costs low.

The little Thew is a powerful digger with sufficient capacity to supply plenty of clay for the plant. As a matter of fact the shovel was

not operated all of the time and when idle it costs nothing—it is even possible to utilize the operators services elsewhere when not using the shovel. This is a distinct advantage over steam for work of this kind.

How are you going to keep down costs this year? Why not get acquainted with the Thew gasoline or electric shovel? It may be just what you need.

THE THEW SHOVEL COMPANY, LORAIN, O.





Would you run your truck with a steam engine?

IMAGINE an upright steam engine built on a truck chassis, hand firing and waiting for steam, to put up with, to say nothing of the high cost of coal. You don't stand for this sort of thing on your trucks—then why stand for it in your shovels and cranes.

Your trucks give you an even flow of flexible, low cost, trouble-free

power sufficient to do the desired work, without auxiliary engines to push it over the high spots. This is exactly what you secure in the Northwest, a Gas shovel, fully powered, free from auxiliary engines—an easily handled unit that does away with the troubles of steam.

Ask a Northwest owner—

NORTHWEST ENGINEERING CO.

1234 Steger Building
CHICAGO

NORTHWEST

GAS OR ELECTRIC

**CRANE
DRAGLINE
SHOVEL**

The **POWER** *Behind the* **THRUST**



LOOK AT THIS PHOTOGRAPH **This is a BUCYRUS 30-B Oil Shovel**

Note: That there are no engine gears, shafts, clutches, chains or belts on boom, yet the thrust has greater power than on a steam shovel. This is accomplished through a patented rope thrust with the full power of the main motor back of it.

ONLY ONE POWER UNIT

A powerful gasoline or Diesel oil engine or electric motor.

This shovel has all the flexibility of action of a steam shovel (even to the shaking of the dipper) with still greater power. Where water is poor or scarce and coal costly, here is your solution. Bucyrus oil and gasoline shovels are working at a fuel cost so low as to be almost unbelievable. *They solved others' problems; they can solve yours.*

THE DIRECT ROPE THRUST IS A PATENTED BUCYRUS FEATURE

BUCYRUS

Established in 1880

A Special Plant Devoted Exclusively to Small Revolving Shovels

Railroad Type and Revolving Shovels of All Sizes, Dragline Excavators, Trench Excavators, Dipper, Hydraulic and Placer Dredges, Spreader Plows, Wrecking Cranes, Etc.

BUCYRUS COMPANY, SOUTH MILWAUKEE, WIS.

New York Chicago Birmingham San Francisco Portland Denver Tokyo London

BUCYRUS



This machine may be had as a Shovel, Dragline, Clamshell Excavator or Crane — quickly changed from one to the other. Steam, Electric, Gasoline or Oil.

**X SEND FOR BULLETIN
F - 301 - B**

and state whether you are interested in gasoline, Diesel oil or electric power



**Consider
These Important
Features
On the New Model 21
Revolving Shovel**

1. Three kinds of power—Steam, Electric and Gasoline-Electric.
2. 17 1/2, 20 or 22 Ft. boom.
3. Crawling traction trucks, wide face wheels or railroad wheels.
4. Crawler trucks, steered **entirely** from upper cab. Operator needs no outside assistance.
5. Open hearth steel truck frame. No rivets or bolts to work loose. Exceptionally strong and substantial.
6. Hoisting, rotating and crowding units separate and independent, regardless of power used.
7. Boom and dipper handle of combination wood and steel, designed with proper strength and resiliency.
8. On steam machine, vertical hoisting engines and through-tube boiler. Less fuel and lower maintenance.
9. Convertible into dragline, clamshell and orangepeel excavator.

Many other features explained in Bulletins 228 and 305. Write for them.

**When Large Output Is Needed
— GET A MARION**

When maximum capacity is desired at lowest possible operating and maintenance cost you can depend on a Marion to produce satisfactory results. This, because—

Marion Shovels are Correctly Designed

They are thoroughly up-to-date, possessing all the latest features and improvements known in power shovel construction.

They are Built Unusually Strong in Every Part

For instance, on small revolving shovels, the dipper front, shipper pinions, dipper handle racking and bevel propelling gears are made of manganese steel. Important shafts are hammered steel and castings subjected to heavy strains are of open hearth steel, heat treated.

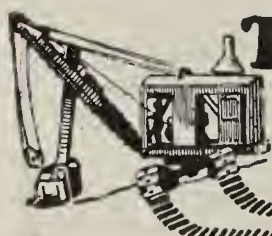
They are Easy to Operate and Inexpensive to Maintain

Operators prefer Marions because adjustments to wearing parts are easy to make and require but little time. The three lever control adds to the efficiency and insures easier running and greater speed.

Prompt and Reliable Service is Assured

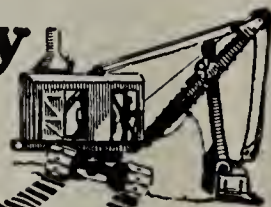
With our modern and complete factory—the largest of its kind in the world—prompt and efficient service is assured after the shovel is in operation. Marion parts always fit for they are made to the interchangeable system of gauges, jigs and templates.

279



The Marion Steam Shovel Company
Marion Ohio.

Marion Crawler Trucks Make Hard-Going Easy



KOEHRING DRAG-LINE



Capacity

Capacity, the profit factor is measured, not alone by bucket dimensions, by line speed and power, but is greatly increased or decreased by flexibility of operation, speed and ease of control, and ability to stand up to unsparing high speed operation without breakdown delays, or fast depreciation.

Single lever steering turns crane to right or left, propels it forward or backward. Easy to control as a motor truck. Koehring *heavy duty* construction, the assurance of trouble-free, long service life—another big factor of extra capacity.

No. 1 Capacity: Heavy $\frac{3}{4}$ cu. yd. bucket at 30 ft. radius. Four cylinder 5 in. x 6 in. gasoline engine. Standard boom 30 ft. long.

No. 2 Capacity: Heavy 1 cu. yd. bucket at 35 ft. radius. Four cylinder $7\frac{1}{2}$ in. x 9 in. gasoline engine. Standard boom 35 ft. long.

No. 3 Capacity: Heavy $1\frac{1}{2}$ cu. yd. bucket at 40 ft. radius. Four cylinder $8\frac{1}{2}$ in. x 10 in. gasoline engine. Standard boom 40 ft. long.

KOEHRING CO., Milwaukee, Wis.

Manufacturers of Cranes, Drag-lines, Shovels, Concrete Mixers.

Sales Offices, service warehouses in principal cities
Foreign Department, Room 1370, 50 Church Street, New York City; Canada, Koehring Company of Canada, Limited, 105 Front Street East, Toronto, Ontario; Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.



A Working Principle— Not an Embalmed Ideal

ABP STANDARD No. 2

"To subscribe to and work
for TRUTH and honesty in
ALL departments."

FEW there are who do not know of the great TRUTH and BETTER BUSINESS movement, which was inaugurated by the Associated Advertising Clubs of the World about ten years ago.

It was the fused and awakened sentiment of the publishing and advertising interests, that to them belonged the responsibility for purifying the stream of publicity and keeping it clean.

Since then these men have procured the adoption of clean advertising laws in nearly every state,

with Vigilance Committees to enforce them. The crooks and swindlers have been driven from the pages of reputable publications, and the power and virility of straight truth-telling has been brought home to all advertisers.

As the Business Press Department of the National Advertising Commission of the A. A. C. of W., The Associated Business Papers, Inc., is proud and glad to be a part of this work. We have incorporated the TRUTH motive into our own standards and our practices.

Note well the word "ALL" in Standard No. 2. It applies with equal force to ALL departments of our papers—editorial as well as advertising.

As a logical sequence of Standard No. 2, we adopted Standard No. 5

A B P STANDARD No. 5

"To decline any advertisement which
has a tendency to mislead, or which does
not conform to business integrity."

THIS imposes a definite obligation upon A B P papers which can not be misunderstood. In this Standard, our publishers plainly acknowledge their responsibility to their subscribers, and pledge themselves to keep the trusteeship inviolate.

Do you not begin to see why business papers aspire to A B P membership; why membership carries the prestige that it does; and why A B P papers are getting preferred consideration from those who believe in high standards especially when coupled with practical achievement?

THE ASSOCIATED BUSINESS PAPERS, Inc.

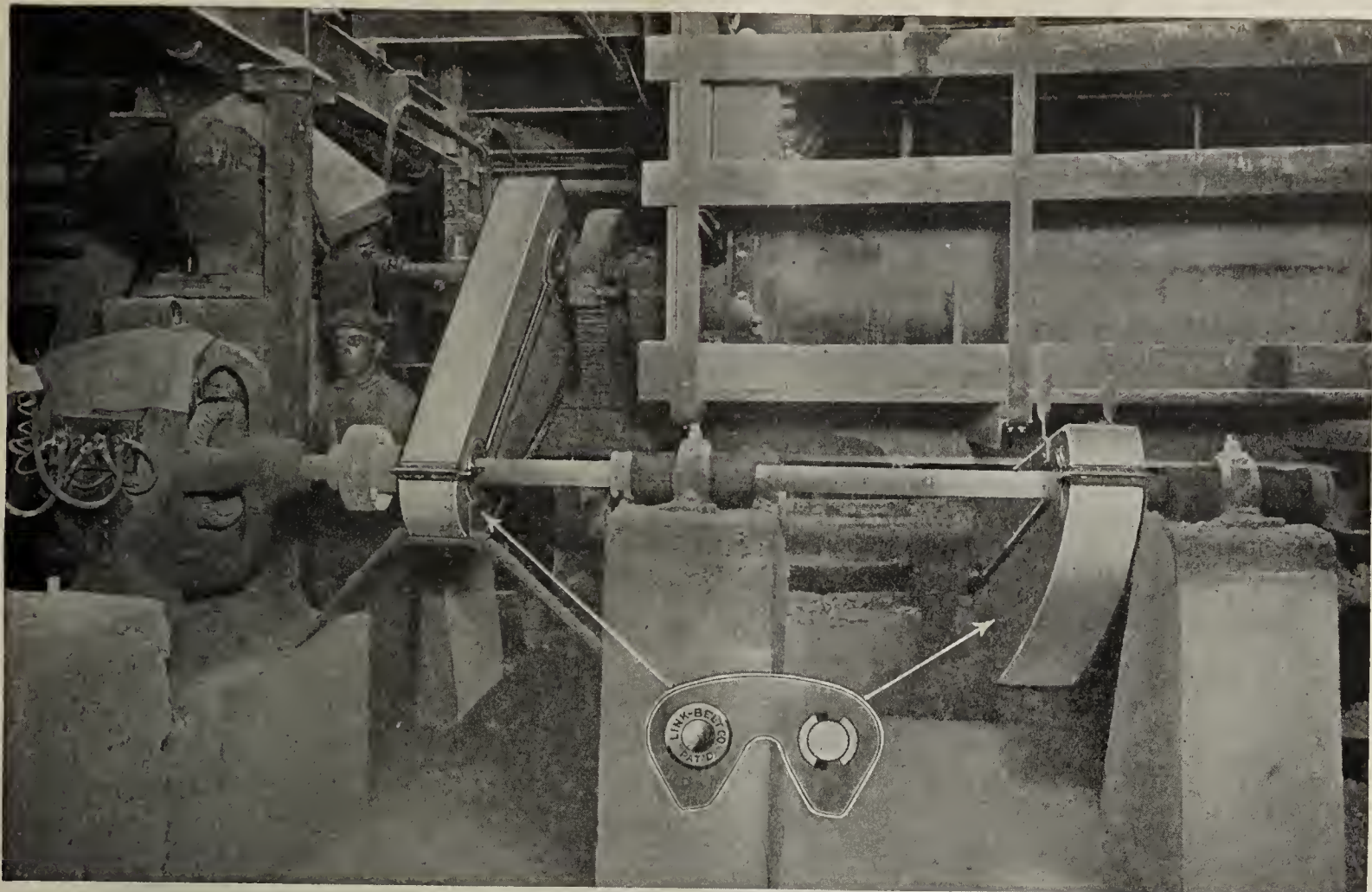
JESSE H. NEAL, *Executive Secretary*

HEADQUARTERS:

220 WEST 42nd STREET

NEW YORK CITY

Brick and Clay Record is a member of The A B P Inc.



Two Link-Belt silent chain drives (encased) operating auger mill (top) and pug mill (below). Both driven from 50 H. P. motor with extended shaft. Laclede Christy Clay Products Co., St. Louis.

Can There Be a Better Method of Transmitting Power?

OVER 50 clay plants have found Link-Belt Silent Chain the ideal drive for operating various equipment in their plants. In this one drive are combined the best points of belts and gears, without their disadvantages.

Check up on your transmission equipment. Stop the leaks. Get maximum production from your machines—eliminate the waste of power. Let our experienced power transmission engineers help you. Send for Data-Book No. 125.



*Flexible as a Belt—
Positive as a Gear—
More Efficient than Either*

LINK-BELT COMPANY

PHILADELPHIA, 2045 Hunting Park Ave.

CHICAGO, 300 W. Pershing Road

INDIANAPOLIS, West Michigan St. & Holmes Ave.

New York - - - Woolworth Bldg.	Huntington, W. Va., - Robson-Prichard Bldg.	San Francisco - - - 168 Second St.	Birmingham, Ala. - - -
Boston 9 - - - 49 Federal St.	Cleveland - - - 42 1/2 Kirby Bldg.	Los Angeles - - - 163 N. Los Angeles St.	S. L. Morrow, 720 Brown-Marx Bldg.
Pittsburgh - - - 335 Fifth Ave.	Detroit - - - 4210 Woodward Ave.	Denver, Lindrooth, Shubart & Co., Boston Bldg.	Charlotte, N. C. - - -
St. Louis - Central Nat'l Bank Bldg.	Kansas City, Mo. - 306 Elmhurst Bldg.	Atlanta, 610-11 Citizens and Southern Bank Bldg.	J. S. Cothran, Com'l Bank Bldg.
Buffalo - - - 745 Ellicott Square	Seattle - - - 820 First Ave., S.	Louisville, Ky. - - - F. Wehle, Starks Bldg.	Canadian Link-Belt Co., Ltd.,
Wilkes-Barre - 2d Nat'l Bank Bldg.	Portland, Ore. - - - 101 First St.	New Orleans - C. O. Hinz, 504 Carondelet Bldg.	Toronto and Montreal
H. W. CALDWELL & SON CO., CHICAGO		NEW YORK, Woolworth Bldg.	DALLAS, TEXAS, 709 Main St.

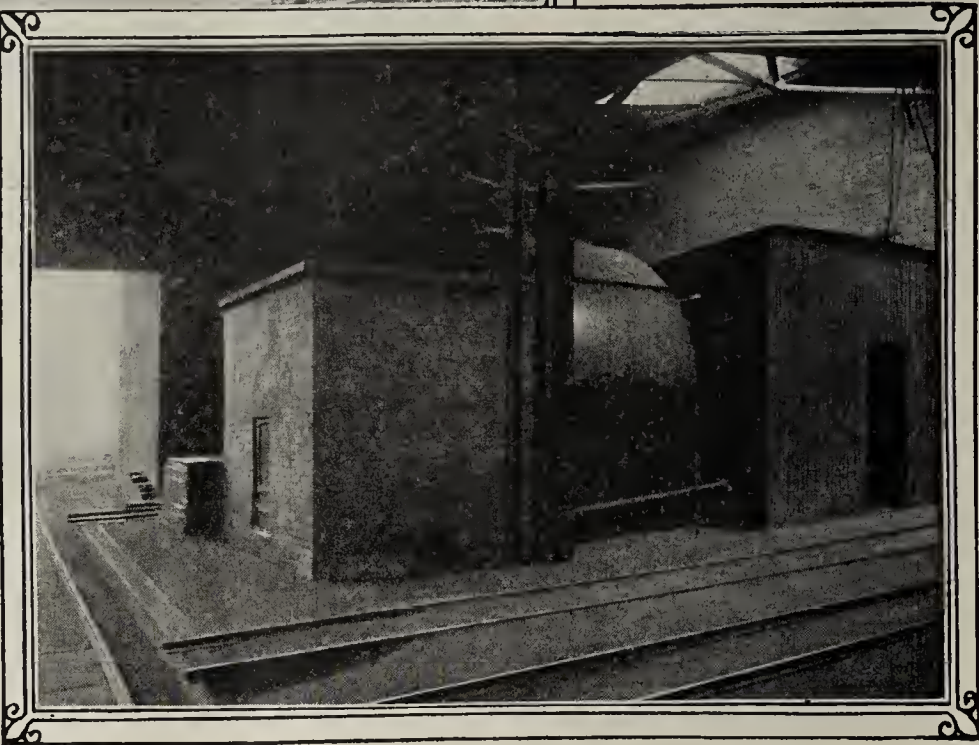
1088

LINK-BELT

SILENT CHAIN DRIVES



Sirocco Fan which handles 100,000 cubic feet of hot air per minute in the plant of the Kittanning Brick & Fire Clay Co., Kittanning, Pa.



Are You Wasting the Heat From Your Cooling Kilns?

A seven car train could be driven from New York to Denver by the heat liberated in the cooling of a kiln thirty feet in diameter if the energy could be utilized.

You *can't* drive a train with this heat, but you *can* put it to use.

An American Blower Waste Heat System will use this heat to dry the green brick in your dryer tunnels. The heat from a cooling kiln 30 feet in diameter will maintain a temperature of 250° Fahrenheit for 48 hours in 24 single track dryer tunnels one hundred feet long, fully loaded with brick.

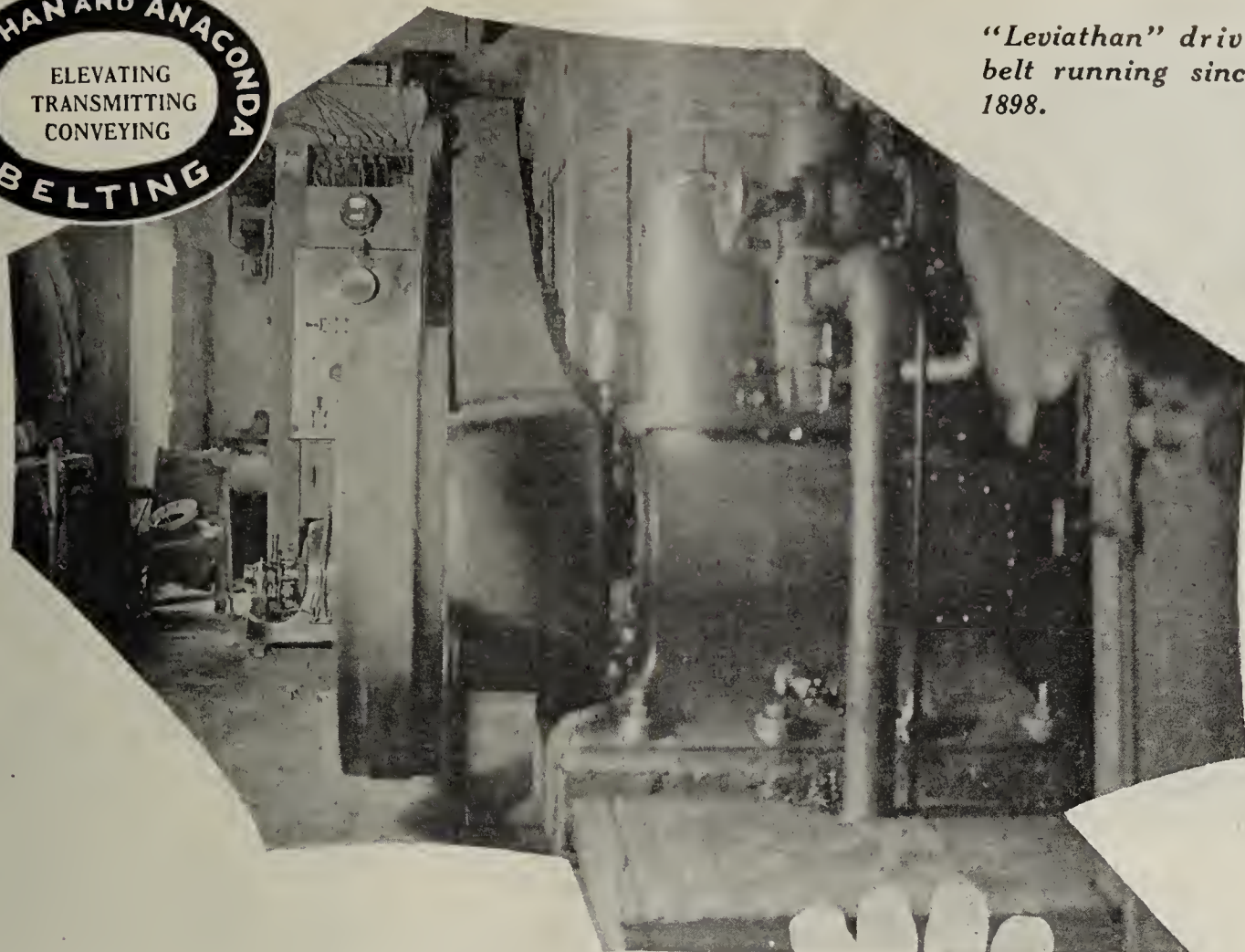
Write for details of the practical applications of these systems in many plants, where they are increasing production and lowering costs.

AMERICAN BLOWER COMPANY, DETROIT
BRANCH OFFICES IN ALL PRINCIPAL CITIES
CANADIAN SIROCCO COMPANY, LIMITED, WINDSOR, ONT.

American Blower (303)

"Sirocco" TRADE MARK

EXHAUSTERS • VENTILATING FANS • AIR WASHERS • BLOWERS • ENGINES
**FOR HEATING, VENTILATING, DRYING,
AIR CONDITIONING, MECHANICAL DRAFT**



"Leviathan" drive belt running since 1898.

25 Years Old and Still Going

The illustration shows a "Leviathan" drive belt in the White Hall Pottery Works, White Hall, Ill., which was placed in operation in 1898 and is still used on the main drive.

The permanency of Main Belting for either power transmission or conveying work is being evidenced in hundreds of clay plants thruout the country now. Service is built into it.



Let us help to solve your problems

Over 40 years' experience is at your service. Write to our nearest office.

MAIN BELTING COMPANY, Philadelphia

Pittsburgh

Chicago

San Francisco

Main Belting Company of Canada, LTD., Montreal

***Leviathan* AND *Anaconda* Belts**

TENSATED TO REMOVE STRETCH



A LABOR SAVER FOR THOSE COAL EATING KILNS

The sturdy BAKER DUMP TRUCK with either side or end-dump body eliminates the services of several men and handles bulk materials like fuel, ashes and waste far more economically than horse-drawn wagons.

One truck with its roll-over V-type body of 27 or 40 cubic feet capacity easily replaces two of the wagons now used for carrying coal and ashes from storage to kilns, or from kilns to dump.

As the Baker can be operated twenty-four hours per day each truck makes a direct saving of two wagons, four horses and four drivers every day and pays for itself in a few months of service.

Baker labor-saving equipment is useful under all conditions but the high wages and scarcity of common labor now prevailing make it particularly valuable under present circumstances.

Baker Industrial Division

THE BAKER R & L COMPANY
CLEVELAND, OHIO



The Versatility of The Elevating Truck

The Baker Elevating Truck is another great labor-saver about a brick plant.

This truck can go right into the kiln with a drying rack or pick up a loaded skid and carry it to storage or direct to freight car.

By fitting the elevating truck with a dump-body skid it can also be used for handling coal or ashes.

Without obligation on your part, a Baker engineer will be glad to investigate your problems and recommend definite ways in which Baker equipment can help solve them.

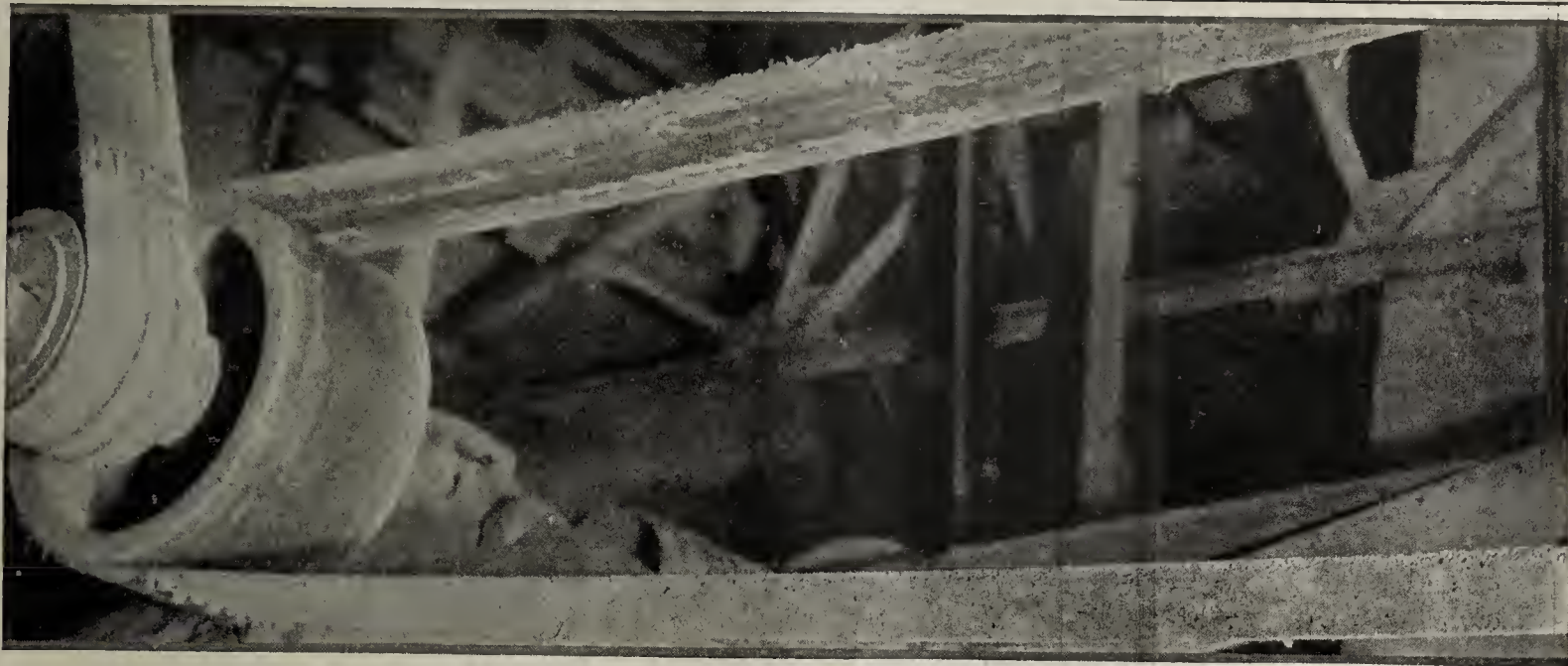
The Baker R&L Co.
Cleveland, Ohio

ELECTRIC TRACTORS AND TRUCKS

TRADE-MARK

Baker

GANDY *is a* BETTER BELT



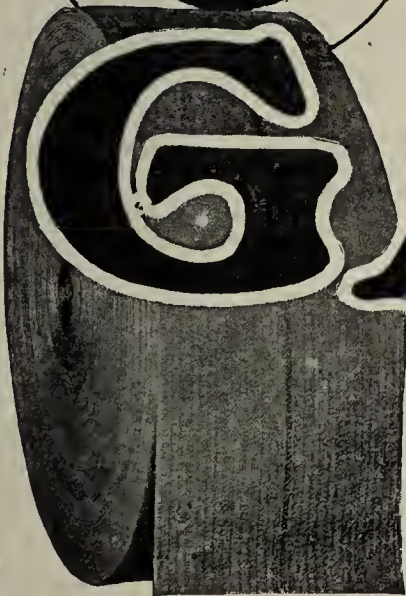
"Been Driving our Freese Pug Mill since 1911"
—A Gandy of course

GAFT was in the White House when this 14" 8-ply Gandy was first hitched up to the Freese Pug Mill in the Centre Brick and Clay Company plant. Day after day, and year after year, it has carried the load without trouble or expense. No wonder Mr. George Bixel says he "has no hesitancy in recommending it for similar work in the brick industry."

Buy Gandy Belts for Main Drives, General Transmission, Elevators and Conveyors—they last longer.

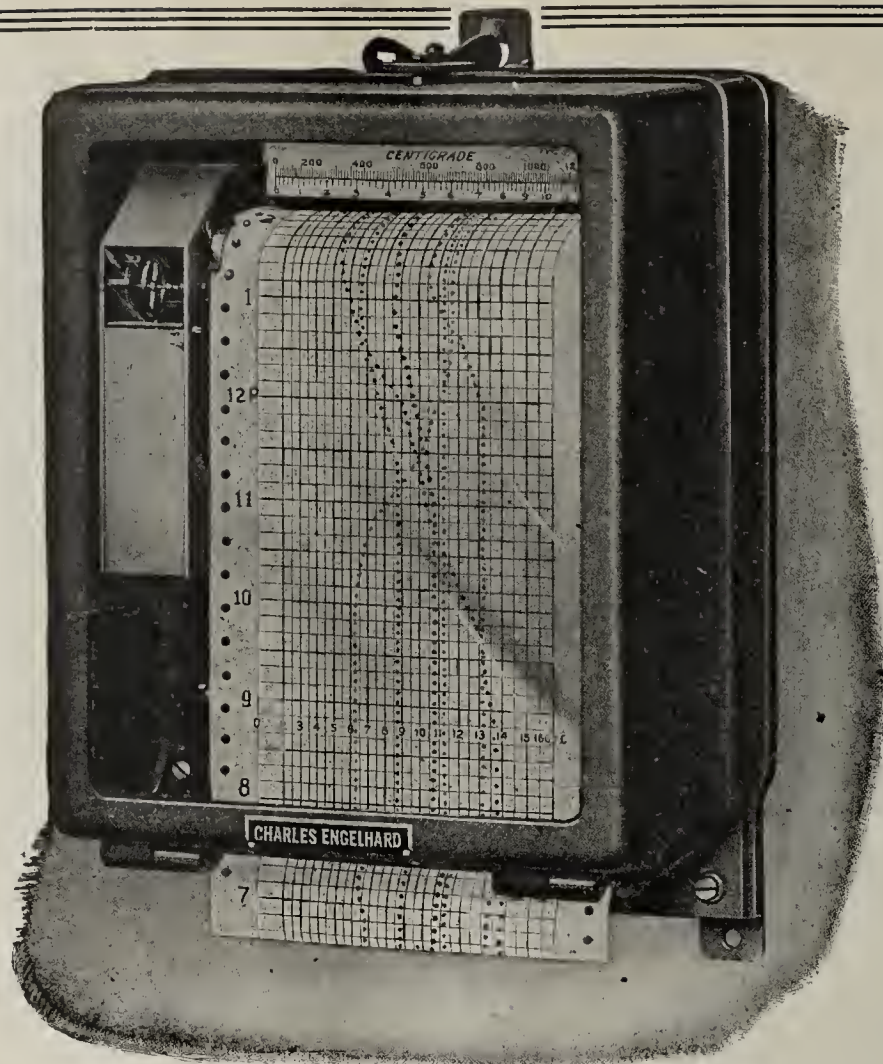
—THE—
GANDY BELTING COMPANY

MAIN OFFICE AND FACTORY: 732 WEST PRATT ST., BALTIMORE, MD.
 NEW YORK: 36 WARREN STREET CHICAGO: 552 W. ADAMS STREET



GANDY
STITCHED COTTON DUCK
BELT

*Simple
Dependable*



*Accurate
Readable*

Are You Paying Your Men
to Shovel Coal or *Make Brick?*

ENGELHARD PYROMETERS

will show you those periods when fuel is being consumed without accomplishing anything—those times when your men are shoveling coal, not making brick—those times when kilns are being depreciated without accomplishing results.

When the superintendent and men do not have accurate temperature guides they are almost always over-cautious; therefore, do not burn the kiln off as rapidly as is possible without danger.

In burning most ware there are critical stages which have to be passed with care, but these may be approached as rapidly as possible. Without means of knowing just when the danger point is reached, the conscientious burner goes very slowly.

He loses time. It costs you money.

There has been no time when PYROMETERS have been so indispensable.

Let us tell you what we can do for you

CHARLES ENGELHARD, INC.

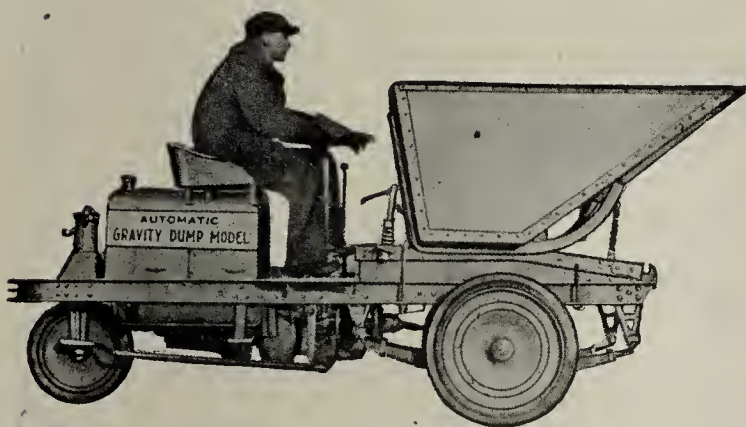
30 Church Street
NEW YORK—U. S. A.

How to Increase Wages!

A Message to Executives

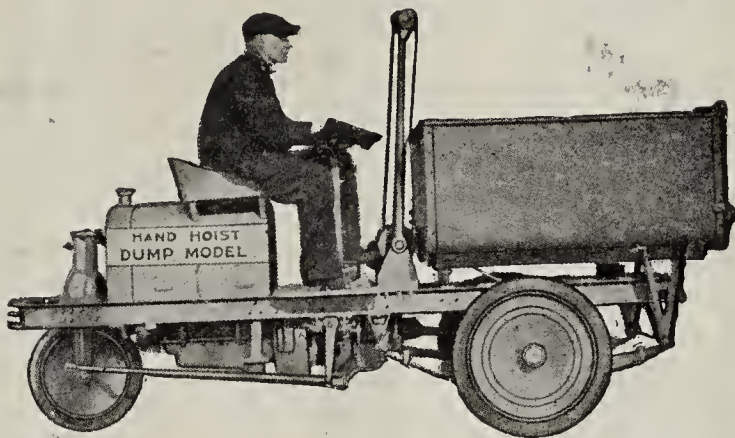
Cut down non-productive labor costs and you will be able to pay higher wages and salaries to the real producers.

Shovel men, hand truckers, "toters," wheelbarrow men are hard to get and expensive to use—Clark Tructractors and Truclifts are easy to get and economical to use.



Auto Dump Tructractor

Brick and clay plants use this model for coaling kilns and boilers, and for hauling cinders, bats and refuse. Capacity, 24 cu. ft. or 2,500 pounds.



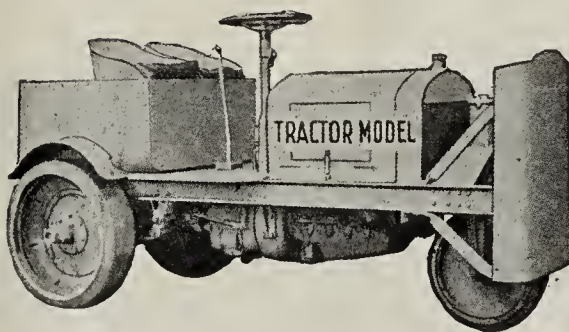
Hand Hoist Tructractor

Clay plants save money on cartage to dumps with this Tructractor. Capacity, 27 cu. ft. or 2,500 pounds.



Clark Truclift

Ideal for toting skids loaded with brick or tile to storage or shipping platform.



Towing Tructractor

This model will tow from one to ten trailers. Used by many brick and clay plants in yards and on shipping platforms. Will turn sharp corners.

[This way for full data]



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Reg. U. S. Pat. Office
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Gasoline Industrial Vehicles

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234



Leading Clay Journal of the World.

BRICK *and* CLAY RECORD

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SOME of the foremost industrial engineers and leading students of economics state that one of the greatest items of cost in the present system of commerce is that of distributing or selling.

Now everyone is interested in this subject from the standpoint of buyer as well as from that of the seller. Any small reduction that can be made in the cost of transferring manufactured goods from the producer to the consumer added to similar small reductions caused by other buyers, will tend to reduce the prices of other supplies and machines that we purchase. It is entirely a question of each one doing his share. The aggregate total will produce splendid results.

How can each manufacturer help to reduce these costs? Chiefly by a reduction of the use of human time and effort. Selling is not labor in the strict sense but at the same time the gospel of labor-saving practices can be preached and taught in this regard just as much as it can be about production methods. If a salesman makes four calls a day, his prices are based accordingly. If we and everyone else assist him to make five, his costs will be reduced accordingly. Whereas, if we retard his progress so that he can make only three, his costs will be increased in proportion.

Now the best way to assist a salesman is to know everything possible about the line he is selling whether it be heavy machinery or light supplies. Read and study the advertisements in the trade paper and reference books, send for the booklets, literature and catalogs offered and be so familiar with the possibilities of the product for you that you can launch at once into details, and obtain information of value. The salesman will appreciate your cooperation very much and will surely reciprocate with suggestions that will prove of considerable value to you.

Moreover, just from a standpoint of saving your own time and obtaining information that may prove of value to you this procedure is advisable. You cannot know too much about it.

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RIGHT along the line—at Indicator and at Recorder, a Brown Pyrometer Equipment supplies constant, accurate information of the heats being carried on the kilns.

At hundreds of busy, successful brick plants, such as shown here, Browns have lifted a great weight from the shoulders of foremen and superintendents. As one foreman expressed it: "We know the kind of ware we're going to get before we open the doors, for we know the temperatures we've maintained right through the 'burn'—our *Brown Pyrometer Equipment* keeps us 'temperature-sure.'"

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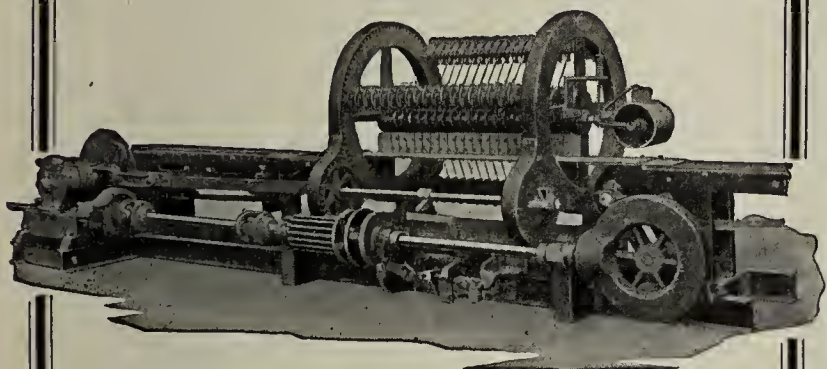
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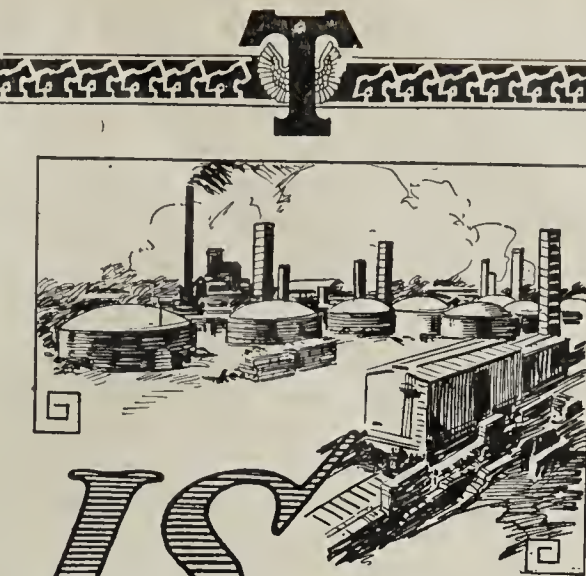
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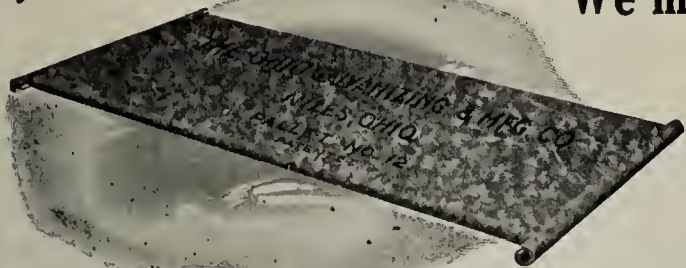
The purpose of this directory is two-fold: it serves to prevent a manufacturer from adopting a trade-name that is already in use—and it also helps manufacturers who use it to establish priority of claim to a name.

ALLIANCE RUFFS—Alliance (O.) Brick Co.
ALUMINITE—The Lock Haven Fire Brick Company, Lock Haven, Pa.
ALUMINITE—The Stowe-Fuller Co., Cleveland, Ohio.
ANNES HOLLOW TILE—Anness & Potter Fire Clay Co., Woodbridge, N. J.
APEX—Tri-City Brick Company, Rock Island, Ill.
ARCADIAN—Poston Paving Brick Company, Crawfordsville, Ind.
ARKATEX—Southern Building Products Co., Little Rock, Ark.
ARMOR—Greenpoint Fire Brick Co., Brooklyn, N. Y.
ARMURE—Tri-City Brick Company, Rock Island, Ill.
ART-TEX—W. E. Loomis, Sherbrooke, P. Q.
ARTBRIQUE—Yingling-Martin Brick Co., Johnsonburg, Pa.
ATHENA—Hocking Valley Fire Clay Co., Nelsonville, Ohio.
AUTO BRIK—Lancaster Iron Works, Inc., Lancaster, Pa.
BABYLONIAN—The Standard Brick Company, Crawfordsville, Ind.
BEAVERCLAY—Beaver Clay Mfg. Co., New Galilee, Pa.
BISHOP COLONIAL—Southern Brick and Tile Company, Louisville, Ky.
BRADFORD HOLLOW BUILDING TILE—Bradford Brick & Tile Co., Bradford, Pa.
BRADFORD REDS—Bradford Brick & Tile Co., Bradford, Pa.
BRADFORD RUFFS—Bradford Brick & Tile Co., Bradford, Pa.
BUFTTEX—Sheffield (Ia.) Brick & Tile Co.
BURLAP—Key-James Brick Co., P. O. Alton Park, Tenn.
BURMAH—Walkers Mill Stone and Brick Co., Pittsburgh, Pa.
CALEDONIAN—Fiske & Co., Inc., Boston and New York.
CHENILLE-TEX—Martinsville Brick Co., Martinsville, Ind.
CASTLE-TEX—New Castle Mining and Clay Products Co., New Castle, Pa.
CLAYCRAFT ROUGH BUFFS AND GRAYS—The Claycraft Mining and Brick Co., Columbus, Ohio.
CLAYCRAFT SMOOTH BUFFS AND GRAYS—The Claycraft Mining and Brick Co., Columbus, Ohio.
CLAYCRAFT VELOURS—The Claycraft Mining and Brick Co., Columbus, Ohio.
CLAYTEX ROUGH REDS AND BUFFS—Walton N. Cable, New York City.
CLOISTER—Western Brick Co., Danville, Ill.
COLONIAL—Capital Clay Co., Des Moines, Iowa.
CONCO CLAY PRODUCTS—H. D. Conkey & Co., Mendota, Ill.
CORALSTONE—Harris Brick Co., Zanesville, O.
CORALROSE—Harris Brick Co., Zanesville, O.
COLUMBIA—Columbia Clay Co., Columbia, S. C.
COMMUNITIES—Danville Brick Co., Manufacturers—H. D. Conkey & Co., Mendota, Ill., General Sales Agents.
CORDOVA (Roofing Tile)—Gladding, McBean & Co., San Francisco and Lincoln, Cal.
CORSWEVE—Thomas Moulding Brick Co., Chicago, Ill.
CROTON-REDS—New Castle Mining and Clay Products Co., New Castle, Pa.
CROWN—Green Fire Brick Co., A. P., Mexico, Mo.
DENISON—Mason City (Ia.) Brick & Tile Co.
DE LUXE—The Standard Brick Company, Crawfordsville, Ind.
DIAMOND—Missouri Fire Brick Co., St. Louis, Mo.
DORIC—Western Brick Co., Danville, Ill.
DUNBAR—United Refractories Co., Uniontown, Pa.
EGYPTIAN PAVING BLOCK—Murphysboro (Ill.) Paving Brick Co.
E. F. B. Co.—Elk Fire Brick Co., St. Marys, Pa.
ELKCO—Elk Fire Brick Co., St. Marys, Pa.
ELKCO SPECIAL—Elk Fire Brick Co., St. Marys, Pa.
ELK STEEL—Elk Fire Brick Co., St. Marys, Pa.
EMBOSTEX—Streator (Ill.) Brick Co.
EMPIRE—Green Fire Brick Co., A. P., Mexico, Mo.
EMPIRE—The Minor Fire Brick Company, Empire, Ohio.
EMPIRE—Western Brick Co., Danville, Ill.
EVERHARD ANTIQUE—Everhard Co., Massillon, Ohio.
EVERHARD CORINTHIANS—Everhard Co., Massillon, Ohio.
EVERHARD DOUBLE-TEXTURE—Everhard Co., Massillon, Ohio.
EVERHARD FERN-LEAF—Everhard Co., Massillon, Ohio.
EVERLASTING—Mason City (Ia.) Brick & Tile Co.

FALLSTON IRON SPOTS—Fallston Fire Clay Co., Pittsburgh, Pa.
FALLTEX, Fallston Fire Clay Co., Pittsburgh, Pa.
FISKLOCK—Fiske & Co., Inc., Boston and New York.
FLINTTILE—Coates Mfg. Co., Kansas City, Mo.
FRASERCLAY—Fraser Brick Co., Dallas Texas.
F. R. C. CHROME—Federal Refractories Company, Alexandria, Pa.
F. R. C. MAGNESITE—Federal Refractories Company, Alexandria, Pa.
F. R. C. SILICA—Federal Refractories Company, Alexandria, Pa.
FROSTBURG RED COMMON BUILDERS—Savage Mountain Fire Brick Co., Frostburg, Md.
FROSTBURG ROUGH TEXTURE—Savage Mountain Fire Brick Co., Frostburg, Md.
FROSTBURG RED HOLLOW TILE—Savage Mountain Fire Brick Co., Frostburg, Md.
FUL-TONE—Fultonham-Texture Brick Co., East Fultonham, Ohio.
FULTONHAM-BLEND—Fultonham-Texture Brick Co., East Fultonham, Ohio.
GLASGO—Glasgow Clay Products Co., Glasgow, Va.
GLONINGER IRON SPOTS—Gloninger & Co., Pittsburgh, Pa.
GOLDEN GLOW—Thos. Moulding Brick Co., Chicago, Ill.
GOTHIC—Western Brick Co., Danville, Ill.
GREENDALES—Hocking Valley Pro. Co., Columbus, O.
GREENDALE RED RUGS—Hocking Valley Pro. Co., Columbus, O.
GREENDALE RUGS—Hocking Valley Pro. Co., Columbus, O.
GRID—Fiske & Co., Inc., Boston and New York.
HAWK-I-TEX—Capital Clay Co., Des Moines, Iowa.
HEATHER-TEX—New Castle Mining and Clay Products Co., New Castle, Pa.
HI-GRADE—Southwest Building Supply Co., Springfield, Mo.
HOCKING BLOCK—Hocking Valley Brick Co., Columbus, O.
HOLLAND SPLIT—Thomas Moulding Brick Co., Chicago, Ill.
HOMESPUN—Thomas Moulding Brick Co., Chicago, Ill.
HY-TEX—Hydraulic-Press Brick Co., St. Louis, Mo.
INTERLOCKING TILE—Fraser Brick Co., Dallas, Texas.
IRONCLAY—Iron Clay Brick Co., Columbus, Ohio.
IRONSTONE—Salt Lake Pressed Brick Co., Salt Lake City, Utah.
KELSO—Hayes Run Fire Brick Co., Orviston, Pa.
KEYSTONE—Elk Fire Brick Co., St. Marys, Pa.
LADLE—The Zoar Fire Clay Company, Zoar, Ohio.
LAKE SHORE MINGLED SHADES—The Burton-Townsend Co., Zanesville, O.
LAKE SHORE BLOCK—The Burton-Townsend Co., Zanesville, Ohio.
L. H. STEEL—The Lock Haven Fire Brick Company, Lock Haven, Pa.
LO-TEX BRICK—The Longmont (Colo.) Brick & Tile Co.
LO-TEX TILE—The Longmont (Colo.) Brick & Tile Co.
LOZENGE—Tri-City Brick Company, Rock Island, Ill.
MARCEL—Tri-City Brick Company, Rock Island, Ill.
M. D. ELK—Elk Fire Brick Co., St. Marys, Pa.
MEDAL BLOCK—Medal Paving Brick Co., Cleveland, Ohio.
METALTEX—Columbia Clay Co., Columbia, S. C.
MEXICO, MO.—Green Fire Brick Co., A. P., Mexico, Mo.
MIDCO—MID—Continent Clay Co., Peru, Kansas.
MINOR—The Minor Fire Brick Company, Empire, Ohio.
MITCHELL EXTRA—Mitchell Clay Mfg. Co., St. Louis, Mo.
MITCHELL SUPERIOR—Mitchell Clay Mfg. Co., St. Louis, Mo.
MITCHELL NO. 1—Mitchell Clay Mfg. Co., St. Louis, Mo.
MOBRIQUE—Harris Brick Co., Zanesville, O.
MOSAIC—Western Brick Co., Danville, Ill.
NATIONAL—The National Fire Brick Company, Strasburg, Ohio.
NO. 1—J. H. Gautier & Co., Jersey City, N. J.
NONPAREIL—Armstrong Cork & Insulation Co., Pittsburgh, Pa.
NORTRUP—Tri-City Brick Company, Rock Island, Ill.

NUMATZ—Tri-City Brick Company, Rock Island, Ill.
NUVOGUE—Boone (Ia.) Brick, Tile & Pav. Co.
OIL—J. H. Gautier & Co., Jersey City, N. J.
OLD HOMESTEAD—Burton-Townsend Co., Zanesville, Ohio.
OLD ROSE MISSION—The Briggs Company, Lansing, Mich.
OLEAN BLOCK—Sterling Brick Co., Olean N. Y.
ORIENTAL—Poston Paving Brick Co., Crawfordsville, Ind.
OXFORD—Southern Brick and Tile Company, Louisville, Ky.
PASTELS—The Standard Brick Co., Crawfordsville, Indiana.
PATRICIANS—Danville Brick Co., Manufacturers—H. D. Conkey & Co., Mendota, Ill., General Sales Agents.
PENN.—The Lock Haven Fire Brick Company, Lock Haven, Pa.
PERFEKT—Tri-City Brick Company, Rock Island, Ill.
PERSIAN SPLIT—Thomas Moulding Brick Co., Chicago, Ill.
POS-TEX—Poston Brick Co., Springfield, Ill.
POTOMAC-SAVAGE—Savage Mountain Fire Brick Co., Frostburg, Md.
"POTTRY"—B. Miffin Hood Brick Co., Atlanta, Ga.
PROMENADE—Yingling-Martin Brick Co., Johnsonburg, Pa.
RAGTEX—Alphons Custodis Chimney Construction Co., New York City.
RAINBOW—Burton Townsend Co., The, Zanesville, Ohio.
RED ROCK RUFFS—Auburn Shale Brick Co., Auburn, Pa.
ROCKTEX—Rockford (Iowa) Brick and Tile Co.
ROTEX—Elk Fire Brick Co., St. Marys, Pa.
ROYAL HA-SIERS—Decatur Brick Mfg. Co., Decatur, Ill.
RUBYTEX—Columbia Clay Co., Columbia, S. C.
RUFTEX—Thomas Moulding Brick Co., Chicago.
RUG—Hocking Valley Pro. Co., Columbus, O.
RUSTIC—Mid-Continent Clay Co., Peru, Kansas.
RUSTIQUE ORIENTAL—Martinsville (Ind.) Bk. Co.
ST. MARYS—Elk Fire Brick Co., St. Marys, Pa.
SAVAGE MOUNTAIN—Savage Mountain Fire Brick Co., Frostburg, Md.
SHALE-TEX—Streator (Ill.) Brick Co.
SIL-O-CEL—Celite Products Co., Chicago, Ill.
S. M.—Savage Mountain Fire Brick Co., Frostburg, Md.
S. M. A.—Savage Mountain Fire Brick Co., Frostburg, Md.
M. EXTRA—Savage Mountain Fire Brick Co., Frostburg, Md.
SPECIAL—Green Fire Brick Co., A. P., Mexico, Mo.
STANDARD—Green Fire Brick Co., A. P., Mexico, Mo.
STANDARD—The National Fire Brick Company, Strasburg, Ohio.
STEEL CLAY—Thos. Moulding Brick Co., Chicago, Ill.
TAPESTRY—Fiske & Co., Inc., Boston and New York.
TAVERN BRICK—Metropolitan Pav. Brick Co., Canton, O.
TEXTUR—Thomas Moulding Brick Co., Chicago, Ill.
THERMO—The Crush Brick Co., Sulphur Springs Texas.
TIFFANY—Thomas Moulding Brick Co., Chicago, Ill.
TINTARA—McKay Brick Co., Wickliffe, Ohio.
TORONTO—Toronto Fire Clay Co., Toronto, O.
TORONTO VINE RUFFS—The Toronto (Ohio) Fire Clay Co.
TOWNSEND BLOCK—The Burton-Townsend Co., Zanesville, Ohio.
TURKESTAN—Beaver Clay Mfg. Co., New Galilee, Pa.
TURKO—Rochester (Pa.) Clay Products Co.
TUT-TEX—MATTS—Birmingham (Ala.) Clay Products Co.
TUXEDOS—Danville Brick Co., Manufacturers—H. D. Conkey & Co., Mendota, Ill., General Sales Agents.
UNITED—United Refractories Co., Uniontown, Pa.
U. R. Co.—United Refractories Co., Uniontown, Pa.
U-TEX—Fultonham-Texture Brick Co., East Fultonham, Ohio.
VINETEX—The Toronto (Ohio) Fire Clay Co.
VERTEX—Beaver Clay Mfg. Co., New Galilee, Pa.
VOLCANIC—Beaver Clay Mfg. Co., New Galilee, Pa.
WATERPROOF—Gloninger & Co., Pittsburgh, Pa.
WIRE-CUT-LUG BRICK—Dunn Wire-Cut Lug Brick Co., Conneaut, Ohio.
YALE-TEX—Gloninger & Co., Pittsburgh, Pa.
ZOAR—The Zoar Fire Clay Company, Zoar, Ohio

Style No. 12



A Time and Money Saver

We make a Steel Pallet that is just exactly what your class of work requires

Our line of manufacture covers the entire Steel Pallet field.

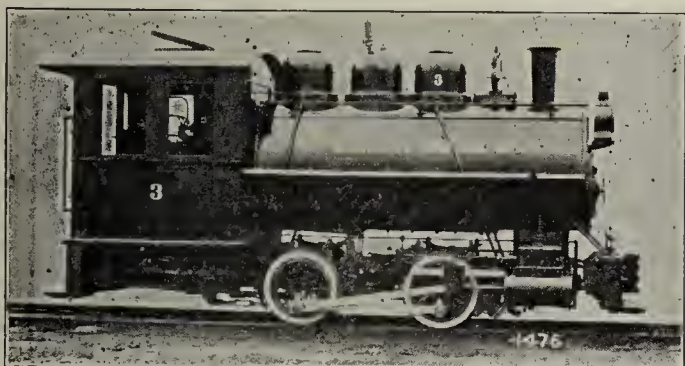
No matter what pattern you need. If you require something quite out of the ordinary, so much the better. We can make it right, deliver it promptly and for the least price. Because we are specialists in this particular line.

Simply let us know what you need or send for complete descriptive matter.

The Ohio Galvanizing & Mfg. Co.
Niles, Ohio

HIGH GRADE CLAYS

OF EVERY KIND—FOR EVERY PURPOSE
UNITED CLAY MINES CORPORATION, TRENTON, N. J.



ALL TYPES—ANY SIZE—GAUGE

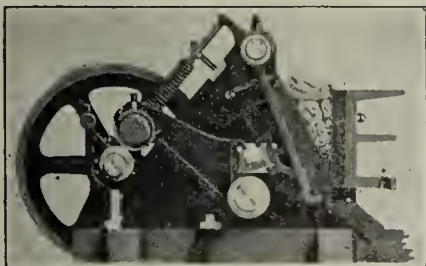
**Davenport Locomotives
for Clay Haulage**

BUILT FOR SERVICE

Submit your haulage problems to us, we will make proper recommendations

Davenport Locomotive Works
Davenport, Iowa

REDUCE YOUR OPERATING COSTS



Your shovel cannot dig your shale, fire clay or ganister in lumps fine enough to feed directly into the dry pan.

To obtain full efficiency the largest pieces of material should be 1¼" or smaller. Reliance Jaw Crushers will handle this preliminary reduction for you, giving you increased production at a minimum investment. If you have hard shale or clay crushing problems let us show you how Reliance Crushers will increase your earnings.

Write for Catalog and Prices

UNIVERSAL ROAD MACHINERY CO. - Kingston, New York
141 MILK STREET, BOSTON 114 LIBERTY STREET, NEW YORK

Not a Man In Sight—



Photo shows the Holyoke Brick Co., Holyoke, Mass., taking their brick from the machine to the drying racks, requiring a minimum of labor.

A partial list of brother manufacturers who are doing the very same thing—

Amherst Brick Co., Amherst, Mass. ☐

R. O. Clark, Berlin, Conn.

Lucas Brick Co., Portland, Me.

Mt. Healthy Brick Co., Mt. Healthy, O.

Mohawk Brick Co., Mechanicsville, N. Y.

Anderson Conveyors transfer automatically and require labor ONLY for putting on and taking off the pallets.

Write for complete information

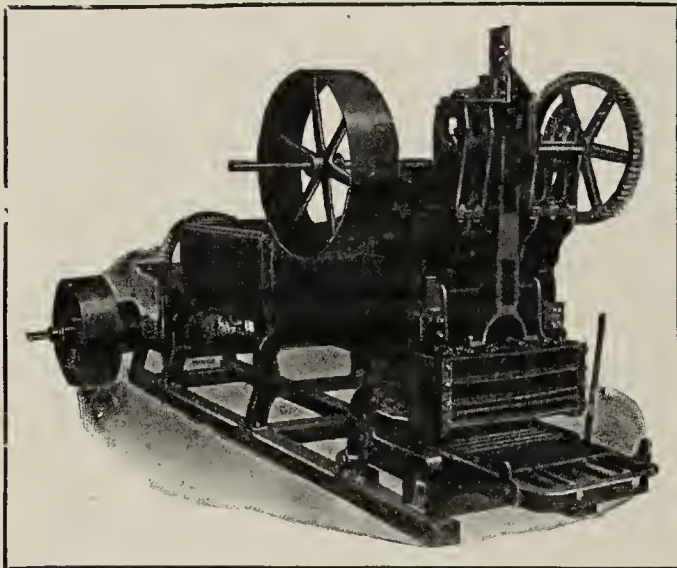
CHAS. J. ANDERSON & SON

Manufacturers of Anderson Brick Conveyor

MARINETTE

—:—

WISCONSIN



POTTS

CLAY WORKING MACHINERY

is installed in hundreds of clay plants throughout the industry. Over 40 years of specialized effort in the manufacture of clay working machinery has given us the ability to understand and successfully manufacture machines to meet the problems of every manufacturer from the practical operating standpoint.

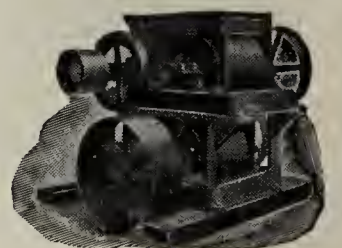
The clay plant operator's great problem today is the need for equipment to increase production to give more efficiency and to reduce costs.

Perhaps you have a similar problem. Write us about it. Our Engineering Department will gladly help you without any obligation whatever.

C. & G. POTTS & COMPANY
Indianapolis, Indiana



SEND FOR OUR
CATALOG



STYLE "P" COMPOUND
DISINTEGRATOR



The Little Giant Tailings Grinder

"Just the machine we want and more than pleased with it"

The Robinson & Sons Sewer Pipe Co.
Urichsville, Ohio

A SURPRISING amount of material which would otherwise go to the dump can be utilized if you have a Little Giant Grinder. It pulverizes dry pan tailings so they can be worked in with the other clay. Crushes broken brick, tile and pottery for grog. Also cinders and coal. Heavy duty hammers reduce material with thousands of sledge hammer blows per minute. Bearings are S. K. F. ball bearings encased in dust proof housings. Capacities one to six tons per hour to sixteen mesh and finer. Tell us your crushing and pulverizing problems.

Williams Patent Crusher & Pulverizer Co.
819 Montgomery Street, St. Louis, Mo.

Chicago
37 W. Van Buren St.

New York
15 Park Row

San Francisco
67 Second St.



Williams

PATENT CRUSHERS GRINDERS SHREDDERS

50% Cheaper Than Wheelbarrows

That's what David K. Cushwa (of Victor Cushwa & Sons, Williamsport, Md.) says in placing his first orders for repairs after using a system of Mathews Gravity Brick Conveyers for sixteen years. (Original system purchased in April, 1907.)

Mr. Cushwa further states in his letter: "We use boys to operate our conveyer. It never fails to do its work and the brick are in better shape than if they were handled on wheelbarrows, less breakage and in better condition in every way when loaded in the cars. It is impossible these days to get labor to wheel brick on wheelbarrows and load in cars and for this reason alone it would be impossible for us to get along without your conveyer. The repairs have been practically nothing."



**Make Yourself Independent of the Labor Situation—
Buy a Mathews Gravity Roller Conveyor System
and Put Boys to Work this Summer**

➡ Read what Mr. Cushwa says about our method of handling brick. Save your money, your brick and your patience the same as he is doing.

Our nearest branch will send an expert brick conveyer man to see you. Notify us when ready. Catalog on request.

Mathews Gravity Carrier Co.

Branch Factories:
Port Hope, Ont.
London, Eng.

108 Tenth Street,
Ellwood City, Penna.



BROOKVILLE GASOLINE LOCOMOTIVES

from both the Fordson Tractor and Ford Ton Truck Power Units.

FIVE YEARS EXPERIENCE

No experiment—Five years devoted exclusively to the manufacture of gas locomotives from the Ford product. Satisfaction guaranteed for all work within their class as to loads and grades. Plus all the added advantages of local Ford & Fordson Service.

FORDSON TYPE

Three tons weight, four wheel drive, 1,500-pound draw bar pull, 20-inch drivers with 36½-inch wheel base. Will hold to rails and take the sharpest curves. Working speed 6 miles per hour in both forward and reverse. Furnished complete with Fordson, or merely the Attachments, as desired. Gauges 24" to 56½"

FORD TON TRUCK TYPE

In our latest heavy cast iron frame type with net weight of two tons and arranged for additional ballast up to two and one-half tons gross we offer the most practical, efficient and economical power known. The traction and pulling power obtained thru our 18-inch steel face drive wheels is almost unbelievable. The Ford ton truck high and low speeds in both forward and reverse work. Gauges 24" to 56½"

Submit your haulage details. If in the locomotive class we'll gladly ship subject to ten days approval.

BROOKVILLE TRUCK & TRACTOR COMPANY

Brookville, Pa., U. S. A.

A. J. ALSDORF CORP., Foreign Distributor
Chicago, Illinois

A. R. WOOLRIDGE CO., Canadian Distributor
220 King St., W., Toronto



209

Smokeless Oil Burners In Connecticut

Smokeless Oil Burners

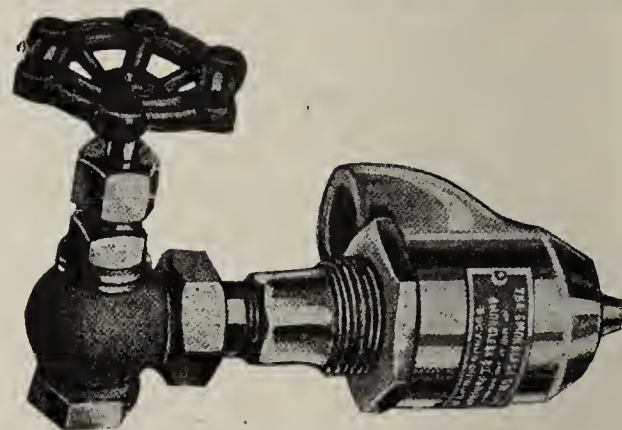
were designed to give to the Clay Industry a highly efficient burner, simple in construction, trouble-free, always dependable and always economical.

Their acceptance by so many representative plants has come because of the successful results achieved; and RESULTS are, after all, the determining factor in any success.

It is because of superior results that Smokeless Oil Burners have become a dominating influence in the Clay Industry.

The Smokeless Oil Burner Co.

Bucyrus, Ohio, U. S. A.



Tanks, Pumps, Meters, Strainers



BUY RIGHT and you'll DRY RIGHT

*If you have Clay Products to dry or
Dryer Equipment to buy*

the BEST way to DRY is in a

Rodgers Waste Heat Dryer

the BEST equipment to BUY is

Rodgers "Lifetime" Dryer Equipment

If you BUY RIGHT you'll DRY RIGHT

L. E. RODGERS ENGINEERING CO.

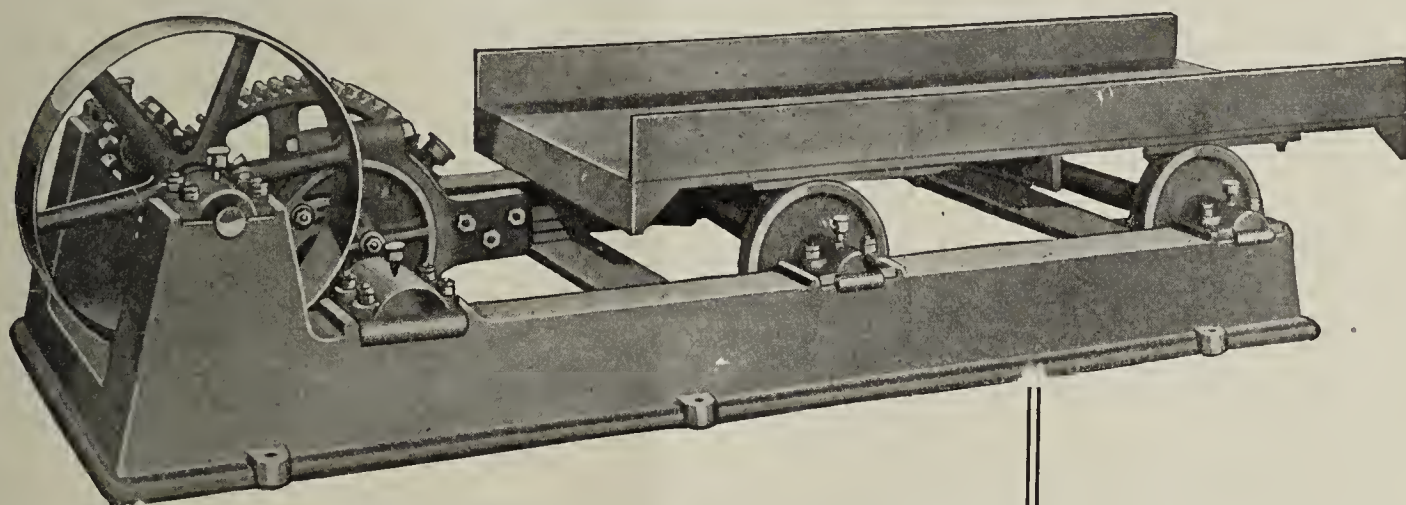
Waste Heat Dryer Specialists—Clay Products Engineers
Largest Manufacturers of Brick Drying Equipment in the United States

OTTAWA,

ILLINOIS



RECIPROCATING CLAY FEEDER for raw material



A regular even feed to crusher or dry pan will insure full capacity.

Write for Feeder Bulletin and typical application

The Bonnot Company
CLAY WORKING MACHINERY
CANTON, OHIO.

Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than \$1.00 per insertion. Cash must accompany all orders to insure insertion.

WANTED—HELP

WANTED—A man with experience in clay-working plant to act as assistant superintendent of sanitary pottery. \$50.00 per week. Chicago Pottery Co., 1924 Clybourn Ave., Chicago, Ill. 6-2-2

WANTED—Experienced sewer pipe burner. Factory on the Pacific Coast. Must be familiar with oil. State experience, qualifications and salary expected. Address: 6-2PC, care of "Brick and Clay Record." 6-2-1

WANTED—Sewer pipe branch maker. Good pay to right party. Address: 6-2RGP, care of "Brick and Clay Record." 6-2TF

WANTED—Superintendent for one of the largest face brick plants in Ohio. Must come well recommended and be able to handle men. State experience and give full details. Address: 6-2FO, care of "Brick and Clay Record." 6-2-1

WANTED—High class man experienced in the manufacture and sale of high temperature cement. High grade product already on market. Large plant, all modern equipment, very stable corporation. Big future for the right man. Write giving experience, references, etc.. Address: EME, care of "Brick and Clay Record." 6-2-1

WANTED—Superintendent stiff-mud common brick plant. Write stating experience plant management, burning, construction and salary expected. Address Box 63, Macon, Ga. 5-2-4

WANTED—A brick burner that understands updraft kilns with blower system; capacity, 50,000 daily, in southern city of 60,000 population. Good climate, good and permanent job to the man that understands his business. State age and experience. Reference required. Address: 6-STX, care of "Brick and Clay Record." 6-3

WANTED—An experienced refractories sales manager to sell best product in the United States. Our sales now cover U. S. and Canada and other foreign countries. We make 9-inch fire clay brick and special shapes. Want man with several years' successful experience in this position. Will pay liberal salary to right man. Address: 5-3LS, care of "Brick and Clay Record." 5-3-3

WE COULD USE A MAN thoroly familiar with the manufacture of stiff-mud brick from clay hole to car. We want a hustler and one who knows how to manage labor and get results. We could also use a head burner thoroly familiar with up-draft and down-draft kilns. Address: 6-CMC, care of "Brick and Clay Record," giving experience and salary expected.

WANTED—POSITIONS

WANTED—Position as superintendent with good reliable people who will appreciate the services of a first-class man to design, erect and superintend the manufacture of high-grade face, fire and hollow tile plant. I have 26 years' successful record and know the business. Address all replies to 6-2GOF, care of "Brick and Clay Record." 6-2-1

WANTED—Position as manager or superintendent of brick or tile plant by one who is practical and competent in the management and construction of clay plants, and the burning of clay ware. Thoroly understands overhauling rundown plants. A1 burner as well as mechanic. Executive, educated, gilt-edge references. Married. Address: 6-2KYW, care of "Brick and Clay Record." 6-2-1

WANTED—Position as superintendent or manager. I have had practical experience in the manufacture of all kinds of hollow ware, glazed ware, as well as shale and surface clay products. Have rebuilt plants and run them successfully. Address: 6-2IXL, care of "Brick and Clay Record." 6-2-2

MISCELLANEOUS

SOUTHERN NEGRO LABOR SUPPLIED Advance orders taken. Correspondence invited. Parker & Co., 419 East 42nd, Chicago. 2-2-4

WANTED—Various lines to represent on the Pacific Coast. Address: B. C. Berg, 5330 Santa Fe Avenue, Los Angeles, Calif. 5-2TF

WANTED TO HEAR from parties interested in building a brick plant. Cheap gas, best of shale, near railway and ready market. Martin-Westerfeld Co., Cieso, Texas. 6-2-1

VALUABLE DEPOSITS OF CLAY

have been discovered in Southern California by J. H. McKnight, 5703½ Pasadena Ave., Los Angeles. Mr. McKnight is an expert on clays and is a manufacturer of clay products. He wishes to communicate with experienced clay workers of means "view building plant." 6-2P

WANTED—EQUIPMENT

WANTED TO BUY—cheap for cash—one used 9 ft. dry pan. Give price, make and location. A. G. Smith, 2825 W. Harrison St., Chicago, Ill. 6-2

WANTED—Second hand end cut brick cutter. Grinnell Clay Products Co., Grinnell, Iowa. 6-1P

WANTED—Conveyor Belt; 350 feet, 5-ply, 18- or 20-inch, new or used rubber covered belting. Address: 6-2CBR, care of "Brick and Clay Record." 6-2-1P

WANTED—Soft mud dryer cars, 22-inch gauge. Stiff-mud dryer cars, single deck, 22-inch gauge. Submit specifications, condition, etc. Location. Lowest cash price. Excelsior Brick Company, Baltimore, Md. 6-1

WANTED—PLANT

WANTED—Brick and tile plant. We help you sell your plant. Address: 6-CH, care of "Brick and Clay Record." 6-2P

FOR SALE—PLANTS

FOR SALE—High grade shale brick plant. located on the two trunk lines in the East. Favorable rates to Washington, Baltimore, Richmond, Va., Philadelphia and New York. A good local market. Capacity, 35,000 per day. Reasonable terms. Address: 8-BP, care of "Brick and Clay Record." 8TF

FOR SALE—An unusual opportunity to purchase a three-kiln drain tile and building material plant with 25 acres of clay, private siding on B. & O. R. R., waste heat dryer, best of buildings and equipment. Has reputation of producing best quality ware in this section. Good demand for all products. This plant to be sold to settle an estate. Address, Richholt Bros., Holgate, Ohio. 6-2-1P

FOR SALE—Small stiff-mud common brick plant situated in central Nebraska with a good demand for the ware and now operating. Two thousand dollars cash will handle the proposition and will net the owner at least twenty-five per cent. upon his investment. This plant has never been closed down. Address: E. V. Gruber, Mendota, Illinois. 6-4

FOR SALE—Brick plant, comprising 30 acres within city limits of large western city. Unusually well equipped. Produced ten million brick in 1922. Excellent demand for product. Owner must dispose because of other interests. Will be sold at a sacrifice. Fifty thousand will handle proposition. Address: 5-Prop, care of "Brick and Clay Record." 5TF

FOR SALE—USED MACHINERY

FOR SALE—One new steel leg bucket elevator, 12 in. by 7 in. buckets, 32 ft. centers; one Freese C-20 cutter. Address 12-ELV, care of "Brick and Clay Record." 12-TF

FOR SALE—One 14 by 18 Erie automatic Tangy engine, one heater, and 50 ft. of 4½ inch piping. The North Indiana Brick Co., Michigan City, Indiana. 5-2-4

FOR SALE—Four-mould Andrus, two-mould Fernholtz dry presses, automatic tile and brick cutting tables. Address: 6-2L, care of "Brick and Clay Record." 6-2-3X

FOR SALE—One Freese Model C-16 automatic cutting table—complete—in first-class running order. Price, \$275 f. o. b. car. S. J. Campbell & Son, Ponchatoula, La. 6-4

FOR SALE

One Chambers Brick Machine.
One New Steel Brick Machine.
One Oil Burning Equipment.
Lot 18-inch Chilled Car Wheels.
Address: 1-Equip, care of "Brick and Clay Record." 1-TF

STEAM SHOVEL

FOR SALE—Thew Type "O" Caterpillars, ¾-yard dipper, 20 ft. boom, 18 ft. 6 in. dipper stick, Factory No. 1956, new 1921, and in first class condition. Price —VERY ATTRACTIVE.

ATLANTA LOCOMOTIVE & EQUIPMENT CO.

Palmer Building

Atlanta,

Georgia

6-2-2

Classified Advertisements

FOR SALE— $\frac{3}{4}$ yard Bucyrus steam shovel, traction wheels; $\frac{1}{3}$ yard Sauerman drag-line with 20 H. P. double drum hoist. Price cheap for cash. Address: 6-2Drum, care of "Brick and Clay Record." 6-2-2

FOR SALE—Bensing Cutter No. IAT plain reel for cutting hollow tile. Good condition. Some extra repair parts. Address: 10-3Cutter, care of Brick and Clay Record. 10-3TF

FOR SALE—2 International 5 ft. turntables, double track, 24-inch gauge; 3 Bonnot plano wire screens, 3 ft. by 6 ft. All in excellent condition. Garfield Fire Clay Co., Robinson, Penna. 5-2-4

FOR SALE

Potts, Hercules, S.S.S., Wellington, Freese, Fate, Chambers brick machines; Potts, Martin, Wellington mould sanders; American pug mill and compound crusher; Stevenson 8 ft. dry pan; 10,000 rolled edge galvanized pallets 10x34. Let me quote you on new pallets. Write me your requirements on machinery.

FRANK McCLELLAN,
14621 Adrenali Avenue,
Cleveland, Ohio. 4-EOI

Rails and Cars For Sale

Also have a large stock of clay and coal cars on hand, and are well equipped to manufacture same. Also have a large stock of rails, both new and relaying, of switches. On hand—24-inch gauge, soft mud rack dryer cars. Will sell at a very attractive price, if moved quickly. M. K. Frank, Union Trust Building, Pittsburgh, Pa. 10TF

FOR SALE—Two high-class vertical type self-lubricating American Blower Co. make steam engines, 9x8 cylinders, capable of developing 35 H. P. at moderate speed. J. C. Boss Engineering Co., Elkhart, Indiana. 6-2TF

GROUND SOLD—MUST VACATE FOR SALE

Engine, boilers, heater, pumps, traps, 50 ft. stack. SSS machine, crusher, pulleys, 36,000 steam pipe dryer. Everything in good order. Now operating. Apply Brick Works, 27th and Tioga Sts., Philadelphia, Pa. 6-2-4

FOR SALE

2 saddle tank 36-inch gauge locomotives.
2 Whitecomb gasoline locomotives—24 in. gauge.
Vulcan 24-inch gauge locomotive, 9 ton.
Full revolving traction shovel $\frac{5}{8}$ yd.
Bucyrus railroad shovel $2\frac{1}{2}$ yd.
20 "V" shape Koppel dump cars $1\frac{1}{2}$ yd., 24-in. ga.
Holt caterpillar tractor.
Lock Box 295, Crown Point, Indiana. 5-2-2

ROTARY DRYERS

30 New direct fired rotary dryers, 4 ft. 0 in. diam., 30 ft. 0 in. long. These dryers were about to be put into operation as the armistice was signed, and consequently were never used. We are offering them at a sacrifice, complete with driving mechanism, furnace irons, grates, etc. Some are equipped with steam radiators, for steam heated air drying.

McDERMOTT BROS. CO.,
Allenton, Pa. 4-2-4

FOR SALE—Chambers Bros. Philadelphia repress No. 2; Chambers Bros. spur geared friction hoist No. 1. Brand new steam shovel. C. H. Stone, Jr., Rome, Ga. 6-1

FOR SALE

Offering Splendid Opportunity
Hollow Building Tile Plant
Fully Equipped
Located on N. Y. C. R. R.
Near Youngstown, Ohio.
Plant now operating. Market and sale of products excellent. Best reasons for selling.

Address: 6-N, care of "Brick and Clay Record." 6-3

400 Tons

NEW 25 LB. RAILS

also NEW SPLICES, FROGS, and SWITCHES

at less than mill price.

STACKED READY FOR IMMEDIATE LOADING

Delivered Prices Quoted.
State quantity and where wanted.

WRITE or WIRE

Walter A. Zelnicker Supply Co., St. Louis
Locomotives, Cars, Steam Shovels,
Tanks, Pipe. 2-2TF

WHAT DO YOU DO?

It is probable that a new problem presents itself to you—or to some of your associates at least once each week. Do you solve it satisfactorily or do you let it slide? Why not insure yourself against such incidents? Start a factory library, fill it with a few choice books that deal with your plant and manufacturing problems. From this list you should be able to select a splendid assortment.

Belt Conveyors and Belt Elevators.....	\$5.00	Hollow Tile Silo, 100 copies:.....	5.00
Bricklaying in Modern Practice.....	.20	How to Build Furnace Efficiency.....	1.00
Bricklaying System.....	4.00	Kent's Mechanical Engineer's Book.....	6.00
Brick Work (Walker).....	.85	Land Drainage.....	2.00
Brickwork and Masonry.....	3.00	Manufacture of Roofing Tile (English Edition).....	1.25
Building Construction and Superintendence, Part 1, Masons' Work.....	7.00	Manufacture of Roofing Tile (Worcester).....	.75
Ceramic Industries (A Treatise on) E. Bourry.....	6.00	Modern Brickmaking.....	7.00
Clay Plant Construction and Operation.....	4.00	Powdered Coal as a Fuel.....	4.50
Clay Products Cyclopedic.....	3.00	Practical Farm Drainage.....	1.75
Clayworkers' Handbook.....	6.50	Producer Gas and Gas Producers.....	4.00
Clayworking Problems.....	1.50	Refractories and Furnaces.....	5.00
Engines and Boilers.....	1.50	Rock Excavation, Handbook of.....	5.00
Engineering for Land Drainage.....	2.50	Scientific Industrial Efficiency.....	2.00
Finding and Stopping Waste in Modern Boiler Rooms. Vol. 2.....	1.00	Scumming and Efflorescence.....	.50
Garages and Motor Boat Houses.....	2.00	Silo (The Hollow Tile) 100 copies.....	5.00
Glazer's Book.....	1.25	Steam Power.....	3.25

Select those books that you want the most, and we will send them to you postpaid upon receipt of price. No books sent on approval. All foreign books subject to 15% import duty.

Brick and Clay Record

407 S. Dearborn St.,
Chicago, Illinois

Perpetual Performance

THAT'S what one of our customers said of our products recently. We have been striving for 33 years toward improvements in design, materials and precision and are constantly alert for further betterment.

STEELE'S LINE CONSISTS OF—

Side Cutters
Brick Machines
(6 sizes)
Dump Cars
Disintegrators
Pug Mills
End Cutters
Lift Cars
Drag Line Excavators
Crushers
Hollow Ware Machines
Hoists
Feeders, and in fact, all
clay plant machinery
and equipment.



STEELE'S

No. 6. BRICK MACHINE (5 OTHER SIZES)

This unit, built in capacities from 50,000 to 150,000 brick a day, incorporates the finest mechanical combinations known. Ruggedness with durability—efficiency with simplicity have all been achieved. Special features are: 2 gears, 4 bearings, representing a reduction of 3 bearings, 2 gears and 1 shaft over the average auger machine. Cut steel gears and hardened drop forged knives add to the excellence of this unit.

Write us regarding your requirements.

J. C. STEELE & SONS

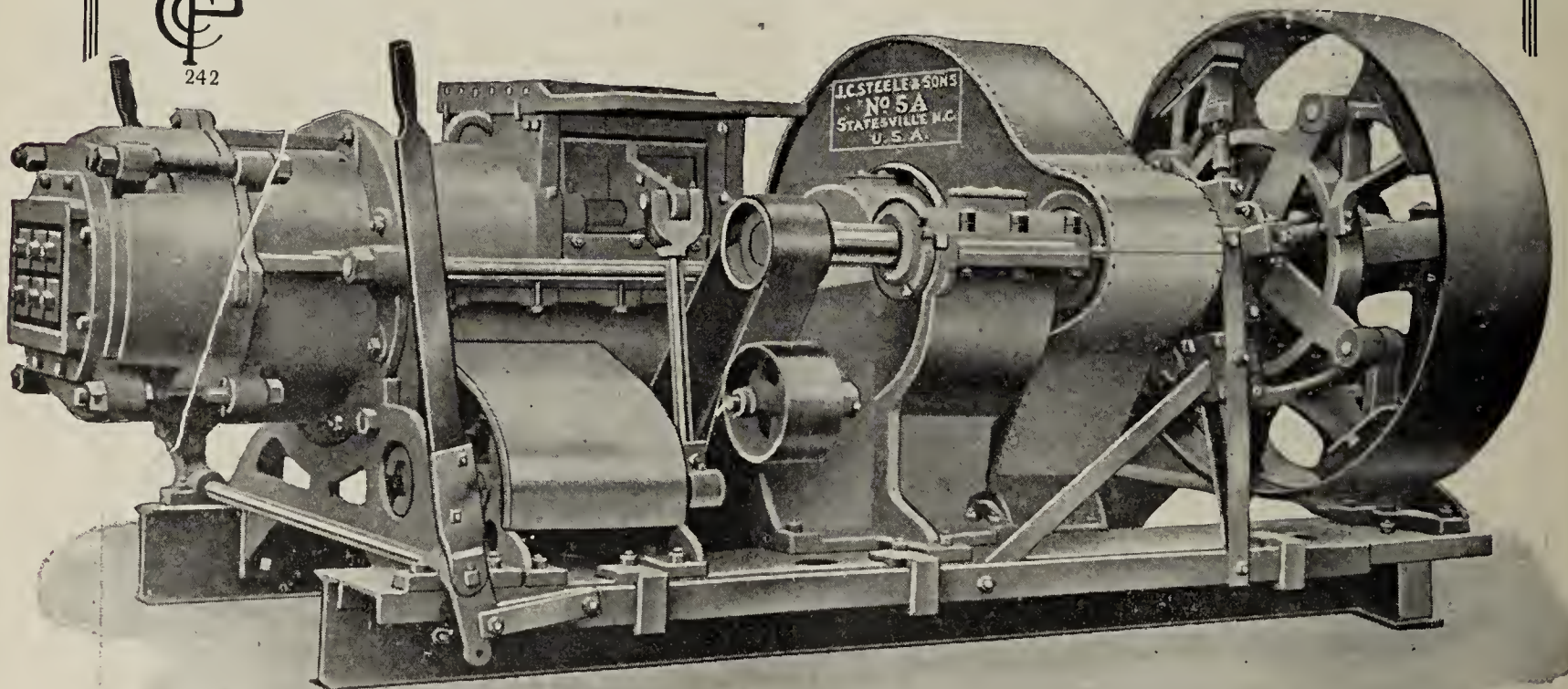
STATESVILLE, NORTH CAROLINA

Western Representative:
Geo. H. Smith, 3309 E. 37th St.
Kansas City, Missouri

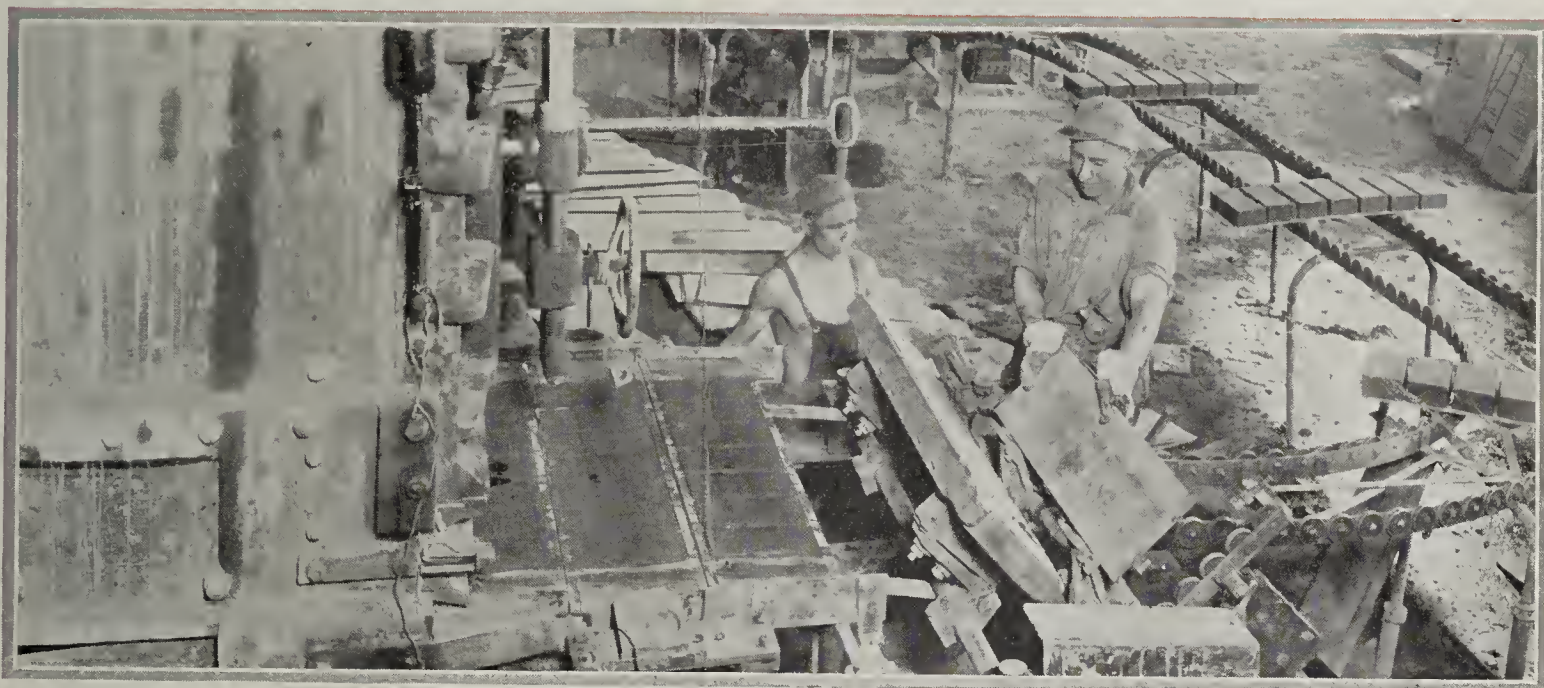
Northern Agents:
The Manufacturers Equipment Co.
Dayton, Ohio



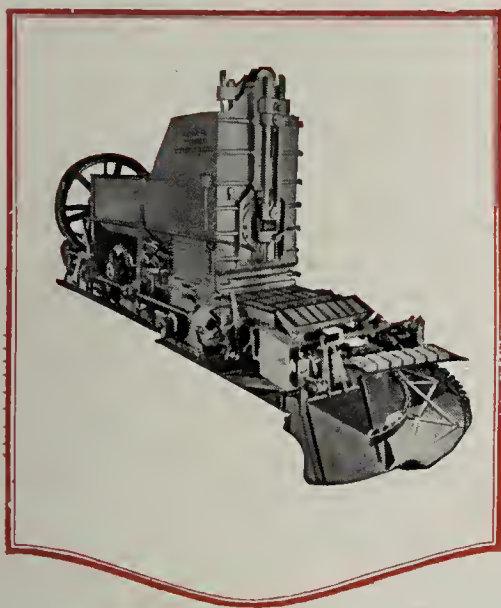
242



AutoBrik Machine



Higher Production Records are Sustained only by Machines that do not Break Down



THE ability of AutoBrik Machines to stand up and withstand the "gaff" of turning out tens of thousands of AutoBrik, hour after hour and month after month without interrupting breakdowns and shutdowns for repairs, is one of the many outstanding features that appeal to all brick manufacturers.

If there should arise a doubt, just ask any brick manufacturer who owns and operates an AutoBrik Machine. He knows.

New Production Records are being broken every month by AutoBrik Machines.

LANCASTER IRON WORKS, Inc.
LANCASTER, PENNA.

Brick Machinery Department, James P. Martin, Manager

Specialists in Completely Equipping Building Brick and Fire Brick Plants for the Manufacture of Brick by the Soft Mud Process.

Another Renewal

ASTE HEAT DRYER
SPECIALISTS
ESTD 1904



CLAY PRODUCTS
ENGINEERS

L. E. RODGERS ENGINEERING Co.
NOT INCORPORATED
MANUFACTURERS OF COMPLETE DRYER EQUIPMENT
CENTRAL LIFE BUILDING
OTTAWA, ILLINOIS

June 21, 1923.
The Clay Products Cyclopedia,
407 South Dearborn Street,
Chicago, Illinois.

Gentlemen:

Our ad in the first edition of the
Clay Products Cyclopedia brought us many in-
quiries from both foreign countries and our
own.

We consider it an excellent and far
reaching medium of advertising, in proof of
which we hereby authorize you to reserve for
us space in your second edition.

Very truly yours,

L. E. RODGERS ENGINEERING CO.
By *[Signature]*

Mr. L. E. Rodgers has also acted as one of the Contributing
Editors for the 1923 Edition. He has revised certain parts
and supplied original engineering information for the editorial
section that will be found of valuable assistance to the industry.

This monogram in the adver-
tisements of the L. E. Rodgers
Engineering Co. or of any other
firm in Brick and Clay Record,
indicates that there is a further
message in the Clay Products
Cyclopedia, to which readers
are referred.

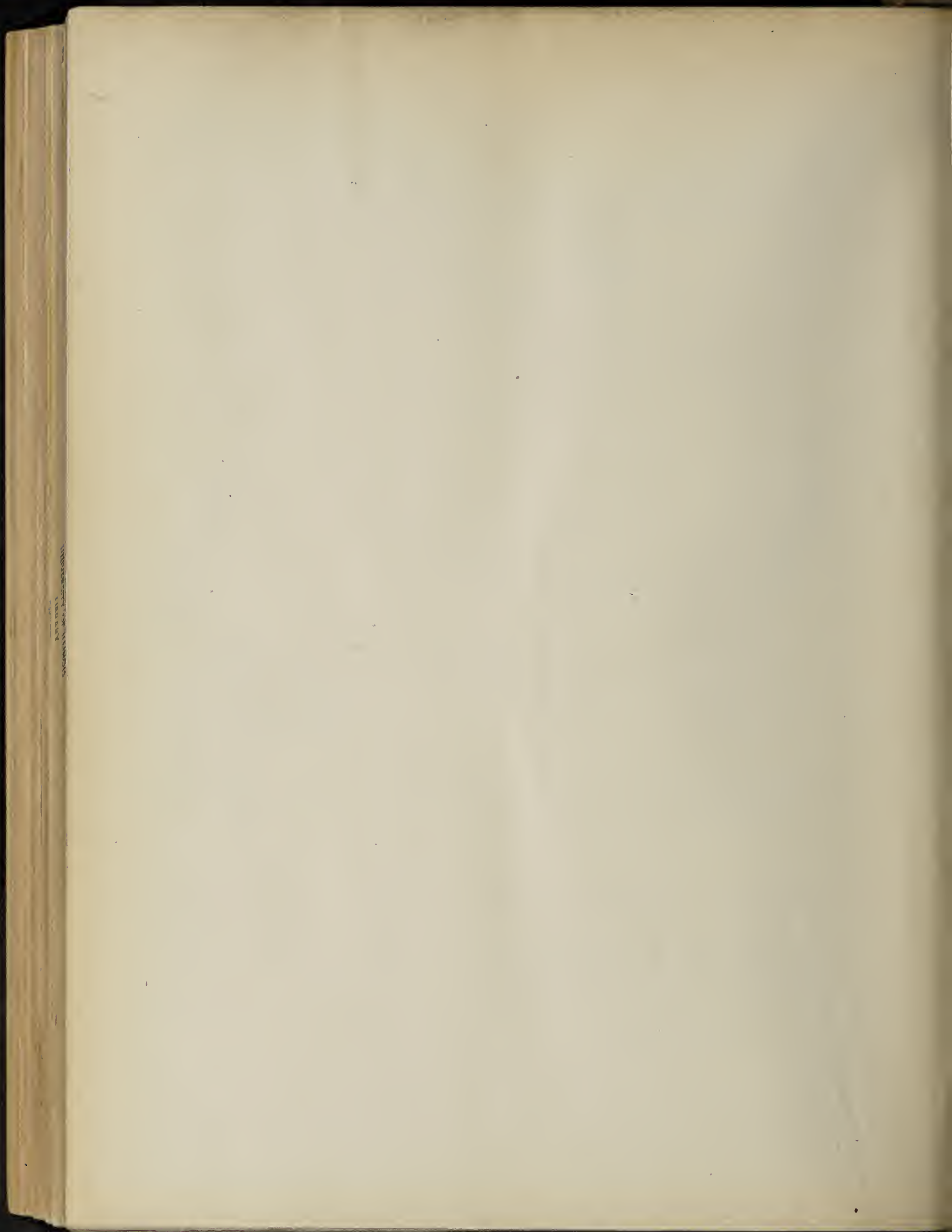


Clay Products Cyclopedia

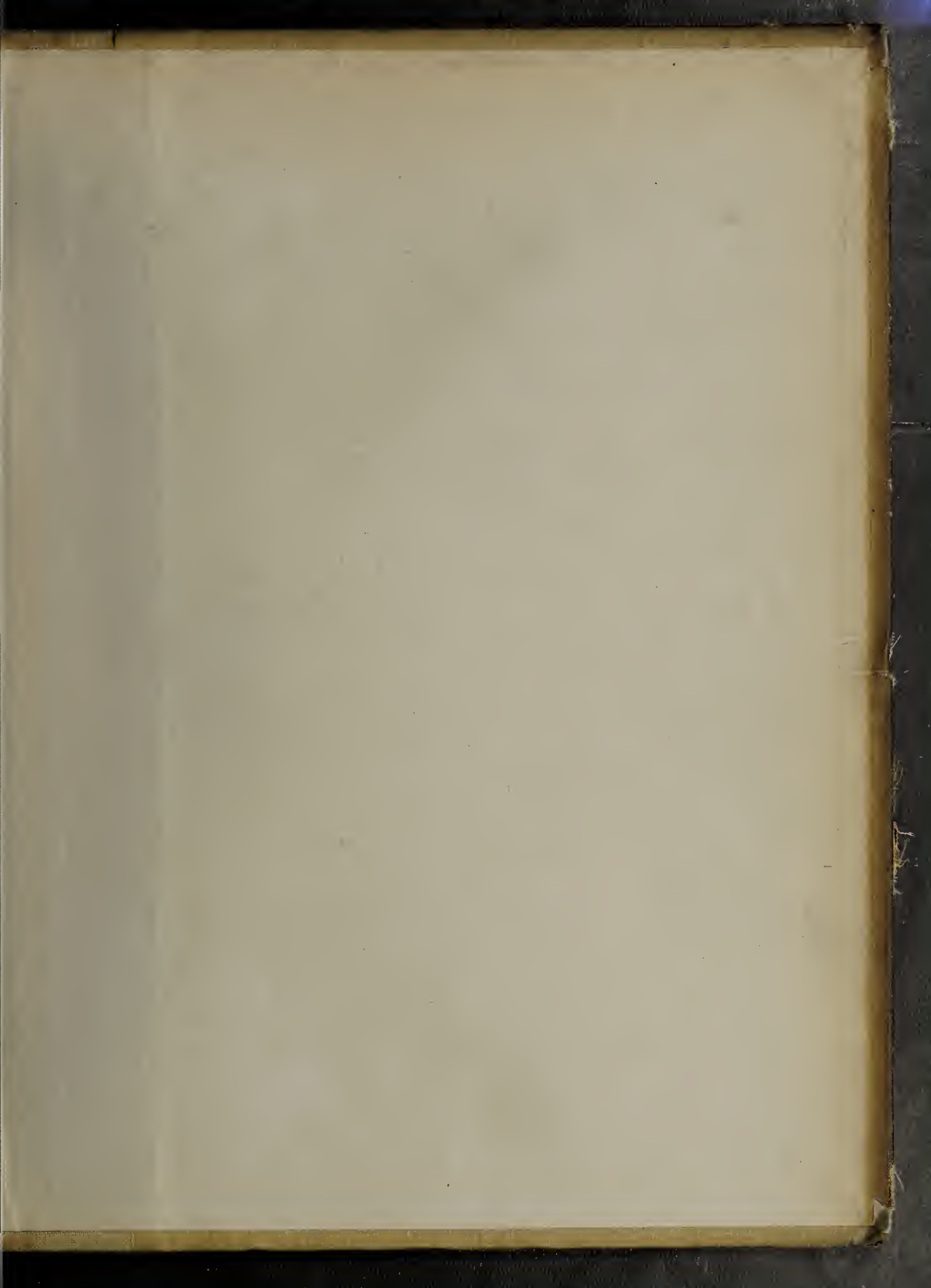
The standard annual reference publication,
which contains engineering and catalog infor-
mation for the entire clay products industry.

*Additional information gladly
furnished upon request*

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